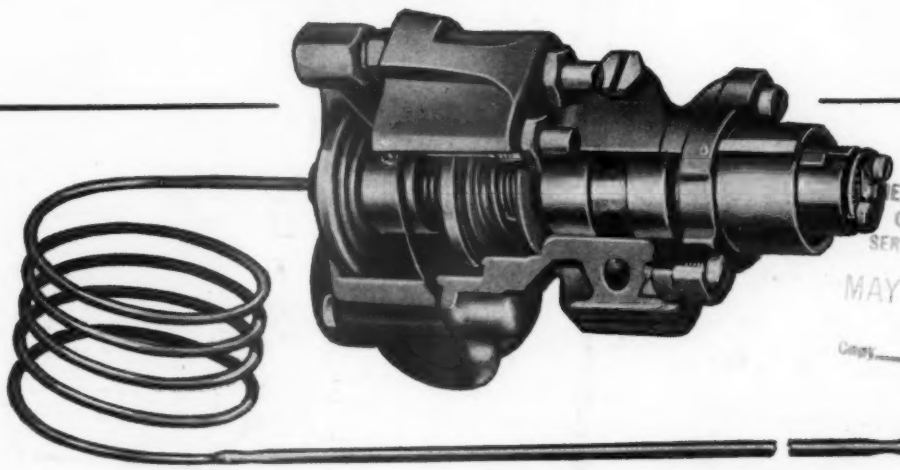
VOL. 174 NO. 3
AMERICAN
MARCH, 1951
Gas Journal

IT'S MADE GOOD 12,000,000 TIMES OVER



THE LIBRARY OF CONGRESS SERIAL RECORD
MAY - 4 1951
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Well over 12,000,000 Model BJ Thermostats are now successfully meeting the requirements of America's outstanding gas range manufacturers. These requirements call for an accurate, sensitive oven-heat-control, rugged enough to retain its precision for years.

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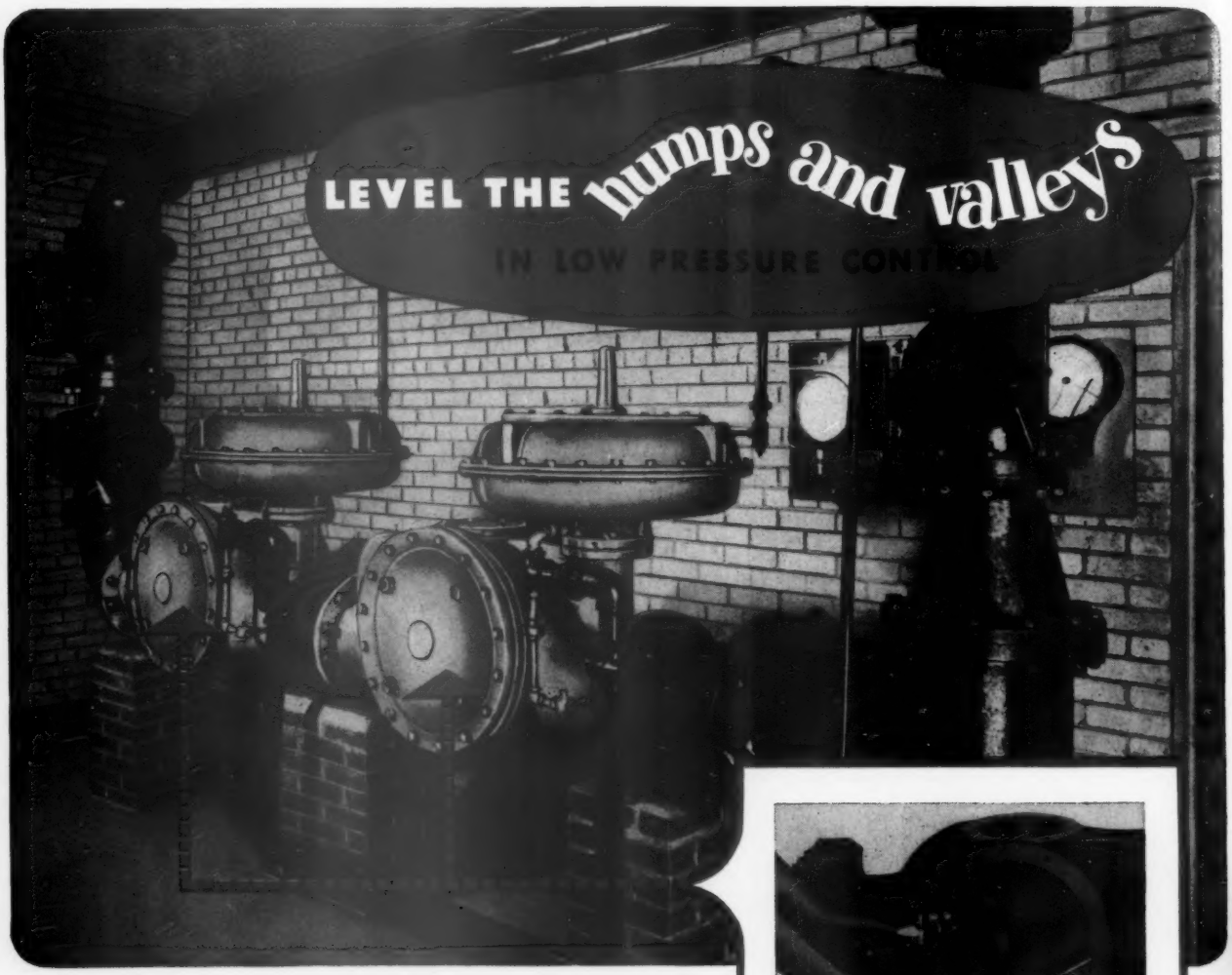

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When you buy Rockwell low pressure regulators you get the advantage of an exclusive internal long lever design that quickly compensates for variations in outlet pressure.

You get a powerful, positive shut-off against a soft resilient valve seat. Since there are no stuffing boxes you gain freedom from binds and premature wear.

A selection of generous diaphragm sizes further insures the highest degree of sensitivity and accuracy in control. All this *plus* a removable inlet bowl (valve chamber) assembly that permits the widest latitude in sizing your regulators. Write for bulletin 1008.

ROCKWELL MANUFACTURING COMPANY

PITTSBURGH 8, PA.

Atlanta Boston Chicago Columbus Houston Kansas City Los Angeles
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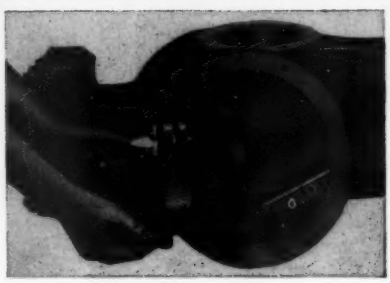

REMOVABLE INLET BOWL FEATURE

In low pressure distribution it is essential that regulator sizes be closely adapted to volume requirements. In the Rockwell regulator this is easily accomplished by means of a removable inlet bowl. Any inlet bowl can be assembled in a regulator of larger size by mounting on an adaptor ring and bolting into the body. For example, a 2" or 4" inlet bowl can be used in a 6" Rockwell regulator. Should changing conditions of pressure or volume make it desirable, this replacement can be made with the regulator in the line.

ROCKWELL balanced valve **REGULATORS**

EMCO

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20 MILLION GAS CONSUMERS ARE ASKING:

"My home uses natural gas. Can the gas company provide me with uninterrupted service?"

Semet-Solvay's High BTU Oil Gas Process (now operating as pictured above) insures this protection for you and your customers.

The principles embodied in this process produce a high BTU oil gas of proven analysis and gravity. This gives you a high percentage mixture for peak shaving requirements, or even complete replacement of natural gas when necessary.

Operating results are highly satisfactory. The following features are particularly noteworthy:

1. Mixtures have been made of *over 75%* of this oil gas with natural gas without detection at the burners and with no complaints whatsoever.

2. Easily controlled composition of the gas.

3. Complete control of the gas gravity.

4. A smokeless process.

5. No objectionable odors.

6. A good grade tar (no emulsions), easily dehydrated.

7. A dependable, uniform day-to-day operation.

Our technical representatives will be happy to give any additional details you may require concerning the above process.

Feel free to consult them at any time. Just call or write.

AMERICAN GAS JOURNAL, March, 1951. Vol. 174, No. 3. Published monthly by American Gas Journal, at 73 Main Street, Brattleboro, Vt. Executive and Editorial offices at 205 East 42nd Street, New York 17, N. Y. Subscription prices: United States $3.00 per year; Canada $4.00; foreign $10.00; single copies 50 cents. Entered as second class matter January 24, 1950, at post office at Brattleboro, Vermont, under Act of March 3, 1879. Printed in U.S.A.

NO PEAK TO SALES HEIGHTS

WITH

EMPIRE

GAS HEATING AND COOKING APPLIANCES

EMPIRE RECESSED HEATING SYSTEMS

The latest in Modern Design and Zone-Controlled Heat, saves valuable space, fits in the wall, does not interfere with placement of furniture . . . Provides complete automatic Control of Heat at an amazingly low cost. Ideal for homes with concrete floors or second story rooms.

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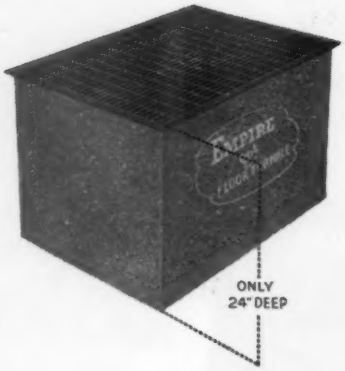

EMPIRE GAS FLOOR FURNACES

This Economical and Efficient Gas Floor Furnace designed for installation in new or existing homes, is only 24" deep. Low First Costs plus unbelievable Low Operating Costs provide higher customer satisfaction and increased sales.

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EMPIRE STOVE COMPANY

BELLEVILLE, ILLINOIS

WORLD'S LARGEST MANUFACTURER OF *Gas* FLOOR FURNACES

AMERICAN Gas Journal
ESTABLISHED 1859

VOLUME 174 MARCH 1951 NUMBER 3

This month...

Deficient as we are in the sterling virtue of modesty, we are pleased to report that the first two chapters in our new educational series, *American Gas Fundamentals*, has been the subject of elaborate praise from readers in every section of the country. Requests for reprints predominate, but we have thus far turned a deaf ear. The sordid facts in the matter are: It is new subscribers that we want, and the price new readers of *Fundamentals* must pay will be exposure to the Editorial page, to This Month, and to the various other trivia and profundities that comprise our monthly production.

On the subject of circulation, we are sometimes editorially aghast at the high sustained note of impelling urgency that characterizes any subscription campaign, our own included. Leap to your feet . . . sign a card . . . rush a check . . . run to the mail box . . . tomorrow may be too late . . . hurry . . . hurry . . . hurry. We feel like adding a penciled reminder that AMERICAN GAS JOURNAL has been in business for nearly ninety-two years; tomorrow may *not* be too late. Of course we strongly advise against putting it off until as far away as next week.

We have pondered the placing of a communication from Mr. Tamotsu Watanabe, consulting engineer, Marunouchi Bldg., Tokyo, Japan, who would like to receive pamphlets, catalogues, illustrations and printed matter on new gas appliances and equipment available for export to his country. He asks us to "introduce me among your members and let them try to open communication with me." Once chief engineer of the Tokyo Gas Co., Mr. Watanabe forsees great expansion of the gas industry in his country, as it proceeds with its program of rehabilitation. We trust some of our "members" favor him with their literature.

Contents

Editorial .. 9

Atlantic City's Unique Public Relations Meets Freak Changeover Disruption—Vernon F. Stanton .. 11

Southern Cal. Gas Modernizes Pay Roll with Machine Equipment—S. E. Johnson and J. K. Windsor .. 15

With Gas versus Electric Cooking Seeing Is Believing—Kathryn L. Barnes .. 17

Public Liability Considerations Involved In Utility-Contractor Relationship—Milford Springer .. 19

Variety of Gas Legal Problems Involved in 1950 Higher Court Decisions—Leo T. Parker .. 22

American Gas Fundamentals .. 27

Index of Yields: Selected Utilities Stocks .. 31

NY Public Service Commission Approves Merger to Avoid Duplicate Regulation .. 38

News of the Gas Industry .. 40

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AMERICAN GAS JOURNAL, established 1859, is published monthly by American Gas Journal, Inc., 205 East 42 St., New York 17, N. Y. E. HOLLEY POE, President and Treasurer; ELLIOTT TAYLOR, Vice-President; ARTHUR W. D. HARRIS, Vice-President; M. E. KELLEHER, Secretary and Assistant Treasurer.

ADVERTISING REPRESENTATIVES: ARTHUR W. D. HARRIS, 205 East 42 St., New York 17; Telephone MUrray Hill 6-4360; JAMES C. MUNN, 2253 Delaware Drive, Cleveland 6, Telephone ERieview 1-1726; ARTHUR ROHMAN, 436 Douglas Bldg., Los Angeles 12, Telephone MAdison 6-0231.

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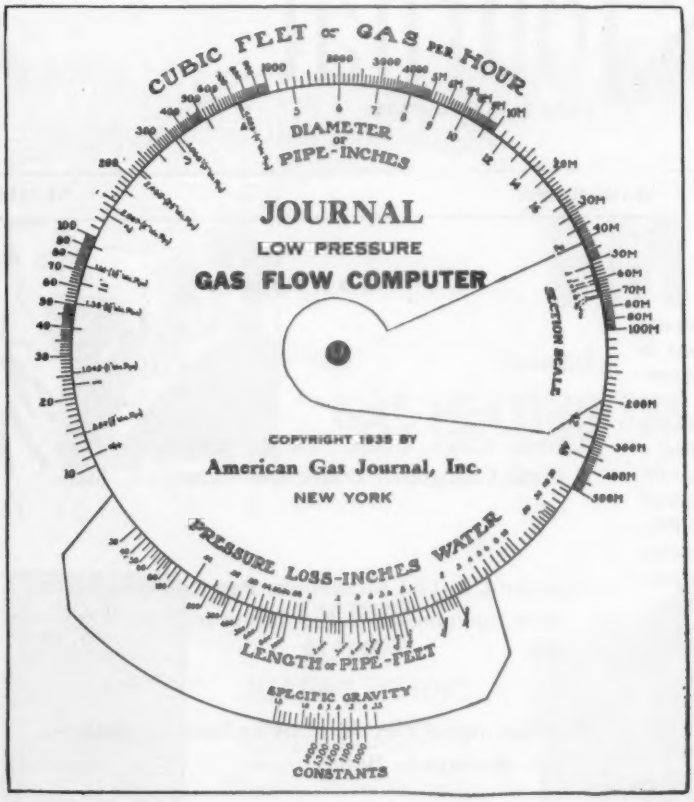
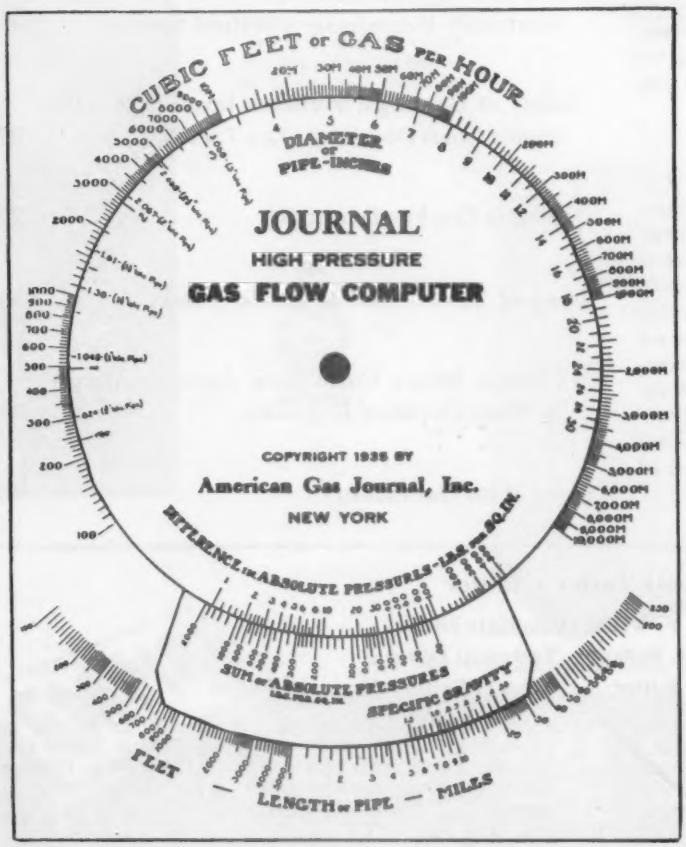
Subscription Rates: United States $3.00 per year; Canada, $4.00; Foreign, $10.00. Single copies, 50 cents.





JOURNAL

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Specific gravities . . . . . 1.5 to .35
Constants . . . . . 1400 to 1000
Pipe length (feet) . . . 30 to 30,000
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Sum of absolute pressures . . . 20 to 2,000 psi.
Specific gravities . . . . . 1.5 to .35
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The computers are printed on heavy durable plastic, enclosed in leatherette cases with complete instructions for their use.

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AMERICAN Gas Journal

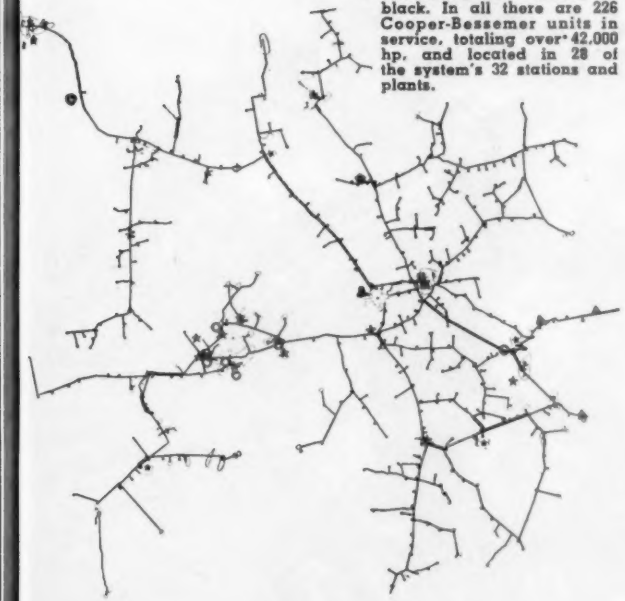
205 E. 42nd Street,
New York 17, N. Y.

Another Example of Efficient Power at Lower Cost

ON THE LONE STAR MAP....

★ Compressor stations
△ Cycling plants
○ Gasoline plants
□ Generator units

....30 years of Cooper-Bessemer power from early horizontals to the latest GMV Turboflows



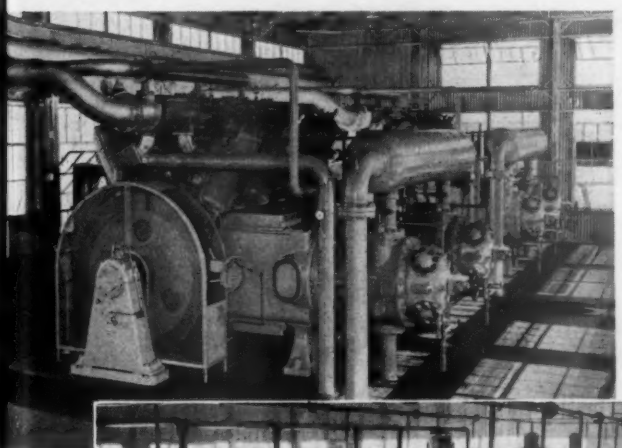
Cooper-Bessemer powered stations and plants are shown in red—others in black. In all there are 226 Cooper-Bessemer units in service, totaling over 42,000 hp, and located in 28 of the system's 32 stations and plants.

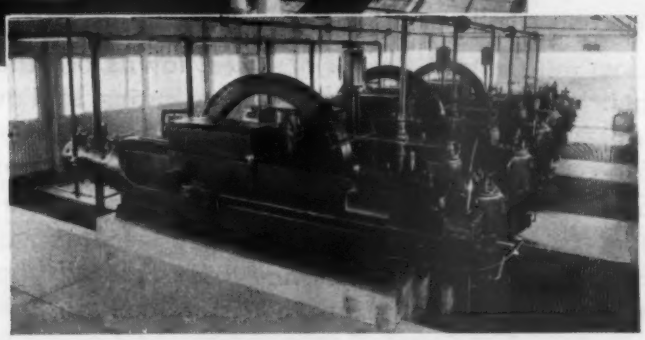
THE map pictures the Lone Star Gas Company's complex system as it is today. It is also evidence of this company's progress, wise management, sound growth . . . and success.

For over 30 years, Cooper-Bessemer has continuously played a major part in meeting Lone Star's power needs of every description . . . engine-driven compressor units, large and small, for gas transmission, cycling and natural gasoline service . . . gas engines of various types for driving auxiliaries and electric generators. Most of the earliest Cooper-Bessemer units, 30 years old and older, are still in regular service, giving efficient, dependable performance!

It's this kind of performance that justifies the confidence Lone Star and other companies show in Cooper-Bessemer products and engineering. It will continue to work to Lone Star's advantage with their latest Cooper-Bessemers—modern GMV Turboflows, for compressor service at lower-than-ever cost.

Below: Two modern, latest type V-angle compressors, Cooper-Bessemer 660 hp GMV-6 Turboflow units, in Lone Star's Gainesville Station.





Left: These Cooper-Bessemer 170 hp Type 75 horizontal compressors, installed in Fox Station 22 years ago, are still in continuous service.

The Cooper-Bessemer Corporation

MOUNT VERNON, OHIO — GROVE CITY, PENNA.

New York, N. Y. Washington, D. C. Bradford, Penna. Parkersburg, W. Va.
San Francisco, Calif. Houston, Dallas, Greggton, Pampa and
Odessa, Texas Seattle, Wash. Tulsa, Okla. Shreveport, La.
St. Louis, Mo. Los Angeles, Calif. Chicago, Illinois Caracas, Venezuela

STRENGTH is vital i

Be doubly sure when you specify pipe for mains to be laid under city pavements. Sure that it effectively resists corrosion. Sure, also, that it has the four strength factors, listed opposite, that pipe must have to withstand beam stresses, external loads, traffic shocks and severe working pressures. *No pipe, deficient in any of these strength factors, should ever be laid in paved streets of cities, towns or villages.* Cast iron water and gas mains, laid over a century ago, are serving in the streets of more than 30 cities in North America. These attested service records prove that cast iron pipe not only assures you of effective resistance to corrosion but all of the vital strength factors of long life and economy.

in pipe for city streets

No pipe that is deficient in any of the following strength factors should ever be laid under paved streets.

CRUSHING STRENGTH

The ability of cast iron pipe to withstand external loads imposed by heavy fill and unusual traffic loads is proved by the Ring Compression Test. Standard 6-inch cast iron pipe withstands a crushing weight of more than 14,000 lbs. per foot.

BEAM STRENGTH

When cast iron pipe is subjected to beam stress caused by soil settlement, or disturbance of soil by other utilities, or resting on an obstruction, tests prove that standard 6-inch cast iron pipe in 10-foot span sustains a load of 15,000 lbs.

SHOCK STRENGTH

The toughness of cast iron pipe which enables it to withstand impact and traffic shocks, as well as the hazards in handling, is demonstrated by the Impact Test. While under hydrostatic pressure and the heavy blows from a 50 pound hammer, standard 6-inch cast iron pipe does not crack until the hammer is dropped 6 times *on the same spot* from progressively increased heights of 6 inches.

BURSTING STRENGTH

In full length bursting tests standard 6-inch cast iron pipe withstands more than 2500 lbs. per square inch internal hydrostatic pressure, which proves ample ability to resist water-hammer or unusual working pressures.

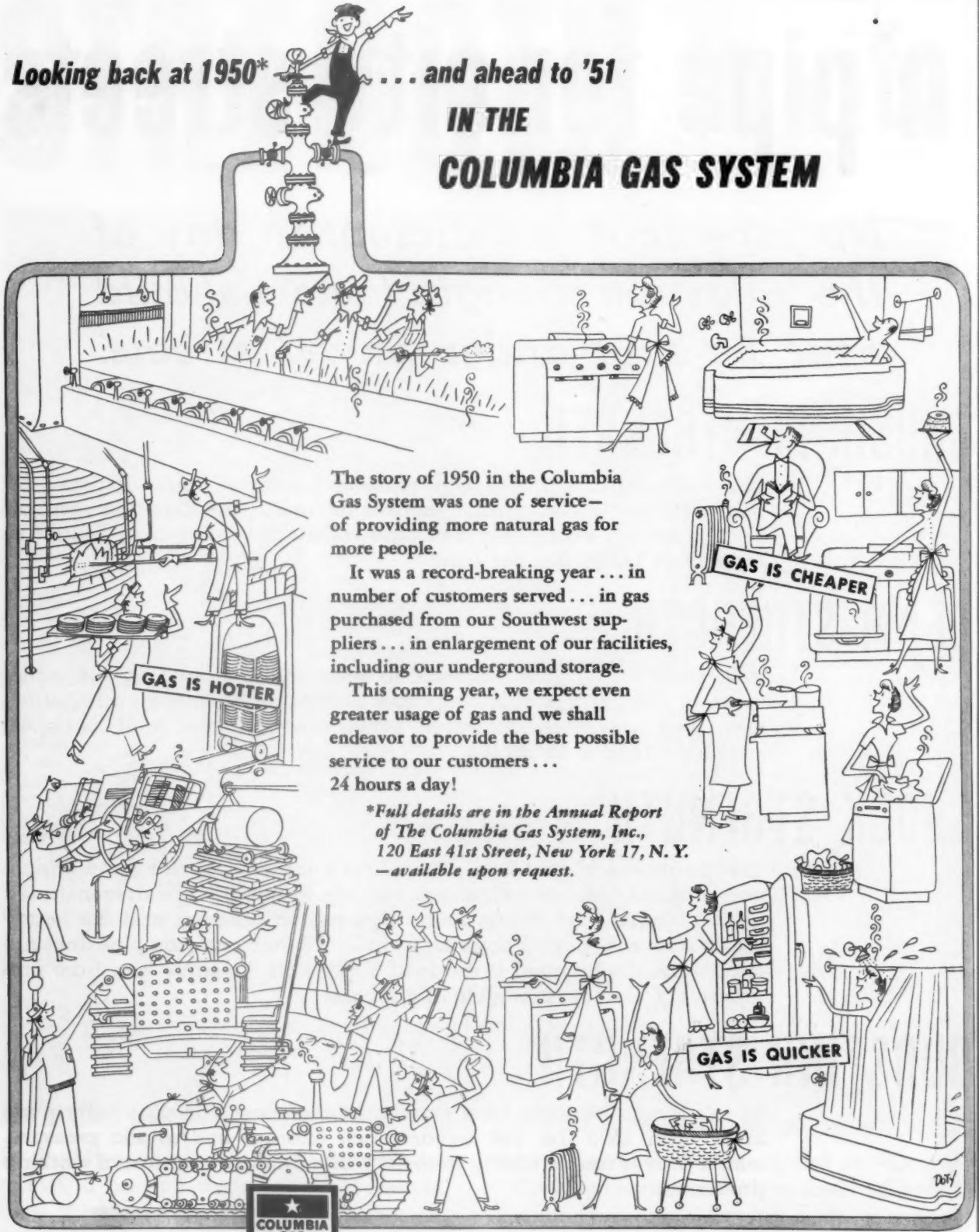
CAST IRON PIPE RESEARCH ASSOCIATION, THOS. F. WOLFE, MANAGING DIRECTOR, 122 SO. MICHIGAN AVE., CHICAGO 3.

CAST IRON PIPE SERVES FOR CENTURIES

Looking back at 1950 . . . and ahead to '51*

IN THE

COLUMBIA GAS SYSTEM



The story of 1950 in the Columbia Gas System was one of service—of providing more natural gas for more people.

It was a record-breaking year . . . in number of customers served . . . in gas purchased from our Southwest suppliers . . . in enlargement of our facilities, including our underground storage.

This coming year, we expect even greater usage of gas and we shall endeavor to provide the best possible service to our customers . . . 24 hours a day!

**Full details are in the Annual Report of The Columbia Gas System, Inc., 120 East 41st Street, New York 17, N. Y. —available upon request.*

COLUMBIA GAS SYSTEM

The Columbia Gas System

CHARLESTON GROUP: United Fuel Gas Company, Atlantic Seaboard Corporation, Amere Gas Utilities Company, Virginia Gas Distribution Corporation, Virginia Gas Transmission Corporation, Big Marsh Oil Company, Central Kentucky Natural Gas Company; **COLUMBUS GROUP:** The Ohio Fuel Gas Company; **PITTSBURGH GROUP:** The Manufacturers Light and Heat Company, Binghamton Gas Works, Cumberland and Allegheny Gas Company, Eastern Pipe Line Company, Home Gas Company, The Keystone Gas Company, Inc., Natural Gas Company of West Virginia; **OIL GROUP:** The Preston Oil Company.

Editorial:

The Indispensable Dealer

THE necessity for more vigorous and understanding dealer-utility cooperation has come to the front in gas merchandising circles, with the result that many gas companies are giving serious consideration to a complete overhauling of their dealer cooperation plans.

There have been an infinite number of variations and shades of dealer cooperation programs; some have worked successfully, some indifferently and some not at all. Whether or not a utility sells appliances at retail is not nearly as important as the basic philosophy behind its merchandising plan. Is the dealer regarded and treated as a competitor, or is he considered to be an ally in the sale of gas appliances?

It is now generally recognized, and the lesson has been driven home by the spectacular successes of recent years in the electrical industry, that a strong aggressive force of independent dealers and dealer salesmen is essential to just the retention of the domestic gas load, to say nothing of its expansion. If local gas company merchandising policies tend to strengthen dealer cooperation, they are in the right direction. If they leave dealers disinterested, laggard, or resentful, they are all wrong.

Whether the task appeals to them or not, there are some aspects of merchandising for which the gas utilities must assume the obligation. One of these is the promotion of quality appliances, either sold from their own floors or through the medium of personal assistance to the independent retailers.

Another is that of dealer education. Manufacturers flood the market with literature, much of it of superior quality. But there is a long gap between designing the most helpful promotional material and having it effectively used. Local dealer meetings, under gas company sponsorship, can go far toward translating these plans into action.

Gas company advertising must be slanted primarily to sell the product—gas; and where brands or makes of appliances are featured, they should always be available through more outlets than just the company's own showroom.

The old idea that the sales department should be a money-maker is another deterrent to good local dealer relations. Where too much emphasis must be put on direct sales, volume and profits become the criteria of success, rather than the much more important factor of load building.

Individually, compared to his local utility, the gas appliance dealer is likely to be a pretty small operator. But collectively, he and all of his kind are the spearhead of all gas sales. To neglect him, and by so doing drive him into the open arms of the electrical competition, is nothing short of gas industry suicide.

Salute To Vision

THE board of directors of the Gas Appliance Manufacturers Association is to be warmly commended on its recent action in unanimously approving the public relations program that has been so long in the discussion stage. The job has been placed in the hands of experts, where it belongs, and we confidently predict that within a few months the gas industry will have reason to appreciate the results of this far-sighted activity.

There is a tendency toward loose thinking in appraising both the means and the ends of public relations. Most commonly, it is confused with press agentry or publicity, of which it is neither. It is only in recent years that the gas utilities have thrown off the delusion that public relations consisted in hiring a hack writer to push out press releases, or in freezing a ward heeler into a pseudo executive post to keep the politicians placated. Viewed in that dim light, the essential task of keeping the public well informed and favorably disposed fades out into tawdry little attempts to grab free newspaper space on the one hand, or to conceal essential information on the other.

This first job of public relations is of such a delicate and intangible nature that it almost defies precise description. Everybody knows that in the large sense it is intended to build good will. But everybody doesn't know, and some who do balk at recognizing the fact, that the first requirement is the creation of an atmosphere within and surrounding an industry in which favorable public sentiment can grow and flourish.

We hear talk, sometimes, of moulding a public relations program to suit the requirements of this or that business. As a matter of fact, what really happens is that the business or the industry, as the case may be, must be prepared to mould itself into a suitable subject *for* public relations.

As the program of GAMA develops, its members may well prepare themselves for some searching self-examination to see whether or not their policies are attuned to the best possible public relations. Quite possibly there will arise situations in which the good of the industry will have to be given priority over the procedures of individual manufacturers.

But, to point out obstacles now would be only to render a disservice to a cause and a course of action that we have long advocated. Suffice it to say that on a national scale GAMA has taken a position of leadership that has long been vacant by default in gas industry public relations. They need and deserve support and applause; and they can well dispense with the services of back seat drivers.

Elliott Taylor

Bryant BLUE SEAL...Gives users the water heater features they want

The Bryant *Blue Seal* Gas Water Heater is made to provide the advantages people want: Completely automatic operation . . . dependability . . . *plenty* of hot water . . . fast, easy temperature selection . . . cleanliness and economy . . . cathodic tank protection.

And beyond these purely operational features is *built-in* Bryant quality that makes for greater customer acceptance and satisfaction. From the extra-heavy tank to the gleaming, easy-to-clean jacket, the *Blue Seal* meets standards far higher than any existing requirements for gas water heater construction.

That's why Bryant *Blue Seal* Water Heaters are backed with greatest confidence by the Bryant 10-Year Protection Plan. That's why your customers ask for the Bryant *Blue Seal* . . . why you can count on gas economy and a minimum of service with this great water heater on your lines.

For complete details, contact the Bryant Distributor near you or write direct. Bryant Heater Division, Dept. 272, Affiliated Gas Equipment, Inc., 17825 St. Clair Ave., Cleveland 10, O.

Bryant Model 115 *Blue Seal* Automatic Gas Water Heater. Made in 20, 30, 40 and 50-gallon capacities. Features Grayson *Unitrol* with 100% Safety Pilot; extra-thick *Fiberglas* insulation; exclusive *Link-Trap* segmental baffle; exclusive streamlined downdraft diverter; sturdy one-piece steel base; exclusive porcelain-enameled aeration plate; cast iron burner with raised, drilled ports; and the *Protect-O-Rod*, magnesium alloy anode which inhibits rust, adds *years* to life of tank.

Let the pup be furnace man ...and water boy too!

bryant

AUTOMATIC HEATING

Your *single* source of supply for everything in gas heating equipment!

Atlantic City's Unique Public Relations Meets Freak Changeover Disruption

by Vernon F. Stanton

General Commercial Manager, South Jersey Gas Co., Atlantic City

Vernon F. Stanton

WHEN this article was promised to AMERICAN GAS JOURNAL at the October AGA convention, it was to be an orderly account of our public relations program for the introduction of natural gas early this year. No one envisioned an anti-climactic chapter with all the melodrama and ominous overtones of a radio soap opera.

It was about 8:30 o'clock on the morning of Friday, January 26, when the 11,000-pound anchor of an oil tanker ripped into Transcontinental Gas Pipe Line Corporation's lateral crossing of the Delaware River. The sickening impact was soon felt throughout South Jersey.

It was three weeks to the day since we had started conversion to natural gas. Some 38,000 homes had been converted. Approximately 22,000 other customers were still on gas manufactured at our Atlantic City, Glassboro and Bridgeton plants. There was a scant 24-hour supply of natural gas in our holders, pipe line and mains.

But *that's* another chapter. Let's take it in chronological order.

Late in 1949—early October, to be more exact—our intervention for 18,000,000 cu. ft. of natural gas per day was before the Federal Power Commission. We proposed to buy this gas—more than twice our existing manufactured gas capacity—from Transcontinental Gas Pipe Line Corp., builder of the quarter-billion dollar Texas-to-Manhattan project.

We had every reason to hope for favorable action on our application and we were anxious to start publicizing natural gas for several reasons.

"Texas Tessie," portrayed by model Jane Wychgel, assists conversion technician Paul Steelman. Photos such as this were used for public education during natural gas conversion.

We had about 2,700 house heating customers on our lines at this time and our position was slowly becoming untenable because of rates. We did not like the idea of losing any of this load since such an optimistic quantity of natural gas would require intensive selling in this field.

We also felt that publicity on natural gas would stimulate the sale of appliances. Natural gas was more than a year away, but we agreed to give it full treatment in the way of advance build-up. We knew that the proper advance publicity would put a lot of new appliances on our lines.

Our first effort was to be a little folder on natural gas—for general distribution. We planned to distribute it at the newspaper cooking school in which we participate each year.

We discussed the project with Harry Volk, Jr., whose advertising agency handles our advertising and public relations. After the usual intolerable wait, the agency submitted a layout and copy which was to have a profound effect on our promotion program.

It was a simple little folder, measuring three by six inches, done in three colors. The copy deftly "romanced" natural gas in brief, understandable language. Technical terms, Btu's and time-honored techniques were forgotten.

The front page contained a simple drawing of a blue flame with the features

gas heat
OFFERS YOU COMFORTS AND ADVANTAGES UNMATCHED BY ANY OTHER HEATING METHOD!
● Look at gas heating from any angle . . . from that of guarding the health of your family to winning for yourself many extra lazy hours in your favorite easy chair. Yes, look at it even over the pages of your budget book. Weigh all the facts, and you will decide that your investment is returned to you manyfold . . . that gas heating is a must for modern homes.
• IT'S CLEANER! Gas burns completely. It throws off no smoke, soot or oily residue to soil draperies and furniture. It leaves no ashes.
• IT'S HEALTHIER! With gas there is no coal dust, soot or flying ashes to irritate delicate nasal membranes. More even temperature is maintained . . . a healthier living atmosphere is assured.
• IT'S ECONOMICAL! Gas heating actually saves money and time. It burns no more fuel than needed. It reduces house and clothing cleaning bills, means fewer doctor bills, eliminates furnace-tending expenses completely.
• IT'S SPACESAVING! Gas-fired heating equipment is compact, requires no fuel storage space. Extra space is available for utility purposes, often provides an additional room in which to live instead of labor.
• IT'S DEPENDABLE! Day and night, your gas company serves thousands of families. Trained men are always on the job to keep your supply sure, efficient, dependable.
• IT'S WORRY-FREE! Set the thermostat control, and gas heating needs no further attention. It automatically provides the inside temperature you want, holds it steady no matter what variations may occur in outside temperatures.
SOUTH JERSEY GAS COMPANY

ORIGINAL TEXAS TESSIE

All the company's advertisements during 1950 included an illustration of "Texas Tessie" caricature.

of an attractive girl, bedecked in sombrero, boots and lariat. It carried the legend "Coming Attraction! Texas Tessie —America's Favorite Flame."

We liked the folder as the opening gun in our campaign and we liked the "Texas Tessie" gimmick. But at that time none of us—including the advertising agency —realized just what we had.

We approved the job and it went to production.

It was scheduled to be ready for the cooking school which coincided with our employees' semi-annual dinner. We planned to tell the natural gas story to all of our people at this dinner. The new folder was to be part of the story as were giant blow-ups of the folder.

Then someone suggested a live "Texas Tessie" for the affair. Dressed as a cowgirl, she was to distribute the folders and sing natural gas parodies on Texas-type tunes. "Texas Tessie" acquitted herself well and aided us in getting across the natural gas story.

The folders were now being distributed at the four-day cooking school and at all of our sales rooms.

We were satisfied that "Texas Tessie" had done her job and as far as we were concerned we had no further plans for her. However, things were to work themselves out quite differently.

In a few days "Texas Tessie" was getting to be something of a conversation piece in our shops, salesrooms and offices. The girls were being called "Tessie" and the meter readers and appliance salesmen wanted to know if they were expected to wear sombreros.

We began to realize that we had something of considerable publicity value and we decided to put our little flame character to work in our advertising. The caricature began to appear in our newspaper advertisements, our window and interior displays, our printed material and our truck signs.

I'd like to make it clear, at this point, that although we expected natural gas late in 1950, we were not able to expand our 1950 sales promotion budget to any great extent. The way "Texas Tessie" was now starting to roll made us hopeful that we could utilize her as a plus benefit in our regularly scheduled advertising.

Through a series of introductory advertisements, truck cards and the original folder, we were able to make "Texas Tessie" symbolic of natural gas. Through a series of news releases and inserts in our regular advertisements we were able to keep the public posted on the progress we were making in securing natural gas for our territory.

It became fairly simple to continue our regular advertising themes and still inject promotion on natural gas. The "Texas Tessie" caricature was sketched standing beside water heaters, ranges, refrigerators and home heating units. The flame wearing a sombrero popped out from truck signs, window and interior displays, newspaper advertisements and direct mail pieces.

Thus we staged our spring water heater promotion, our early summer Servel campaign and our Old Stove Round-Up in the usual manner and picked up plus benefits in our campaign to pre-sell natural gas.

The "Texas Tessie" who had made her first and last appearance at our employees' dinner was now destined to come back to life.

Early in 1950 we started making arrangements for a speaker to visit various civic club luncheons and exhibit a motion picture on natural gas which was to be made available to us. In the spring of last year, the first of these engagements started to loom near and the film was not ready!

Hugh Wathen, our sales manager, who had been given the task of covering these civic clubs, came up with an idea. He proposed a fifteen minute talk on natural gas, supplemented with a live "Texas Tessie." The girl was to be dressed in western regalia and was to hand out literature and cigars, as well as be *generally decorative*.

Mr. Wathen delivered his first talk before the Exchange Club in Atlantic City. In all fairness I must report that the girl stole the show. The next day her picture appeared in all the daily newspapers in Atlantic City.

The papers, as a rule, do not print photos of civic club speakers unless they are quite well known. Our girl, however, was something different and we were now off on a new tangent.

"Texas Tessie" became an integral part of the act and wherever Mr. Wathen spoke, she appeared and was photographed. The duet roamed up and down our territory telling the story of natural gas.

"Tessie" was now becoming more than part of the act—she was natural gas itself. Mechanics, sensing the job opportunities in our expansion, were coming in and asking for jobs with the "Texas Tessie" company. House heating customers occasionally complained about rates and asked how soon "Texas Tessie" might arrive.

The girl was news! When we started construction of our own pipe line across South Jersey, her photographs on the pipe were the springboard for publicity. At the famous Miss America Pageant, Miss Texas presented our "Tessie" with a container of natural gas and the picture appeared in dozens of papers. She was photographed with our "Texas Tessie" softball team and our "Texas Tessie" bowling team and in a number of other situations.

Then came the AGA convention in October and most readers of this magazine will remember what happened at that time. We really reaped the benefit of a carefully planned buildup in which the leading daily paper published a 24-page section on natural gas and our "Tessie" ran rampant in publicity photographs.

Her pictures were not only printed locally but in many newspapers and magazines all over the country.

At the end of the year—natural gas was now very near—the Atlantic City Kiwanis Club built its year-end frolic around "Texas Tessie" with a sober Kiwanian portraying our lovely trademark. More pictures; more publicity! The year-end publication of a leading social organization offered "Tennessee Tootsie" as the symbol for natural hot air which they suggested piping out of city hall.

Finally, a leading columnist acclaimed her as South Jersey's most photographed girl of the year.

All of this, mind you, was in addition to the conventional kind of publicity. We had our full share of pictures of pipe line contract signing, ground breaking, crossing important business arteries, inspection by officers and directors and finally pre-conversion work.

All the while the cartoon figure continued to appear in our advertisements, in our posters and windows. We were now supporting her with many of the new developments in the advertising field. She swung to and fro in our show windows as incandescent lights alternated with the remarkable new "black light." Our truck signs were now incorporating various "Day-Glo" colors.

Our first signs said briefly: "Coming Attraction—'Texas Tessie'—America's Favorite Flame." Later we switched to "Coming Soon—Natural Gas." In a few months we added "Very" with a caret mark. Finally our truck, street car and bus signs announced briefly "Natural Gas Is Here!"

As the year closed and as the arrival of natural gas was imminent we appraised the results of our 1950 promotion of natural gas. We noted that:

(1) "Texas Tessie" had become a household word and was generally accepted as our brand name for natural gas.

(2) Heating customers' complaints about high bills had been sharply reduced, largely because of the promise of natural gas rates.

(3) In a territory of 60,000 customers we installed 1208 new heating jobs during 1950 on the promise of natural gas.

(4) Over 2800 automatic water heaters were installed in our territory, approximately 3900 gas ranges and 980 Servel refrigerators. This totals to approximately 7700 domestic gas appliances as compared to about 4500 during 1949, and far exceeds the sales results of any previous year.

We made the first conversions to natural gas on January 5th. Our Glassboro division was divided into 11 districts and our Atlantic City division into 14. Conversions and Surveys, Inc., had more than 600 men on the job.

Our general handling of public information on the conversions followed the usual pattern. We did make use of the district maps which we had drawn for the newspapers on the reverse side of the letters which were sent out to all customers.

Late in January we were proceding with probably neither more nor less difficulty than other companies who have converted or will convert to natural gas. We were in the 9th of our 14 Atlantic City districts and the 6th of our 11 Glassboro districts when *it happened.*

The anchor of an oil tanker ripped into the lateral pipe line crossing of the Delaware River, off Marcus Hook, Pennsylvania and severed the line. The under-the-river line had been laid by Transcontinental Gas Pipe Line Corporation in December and they were just about to start pouring the clay and gravel fill for the trench in the bed of the river.

Some of our 60,000 customers were already on natural gas. The remaining 22,000 were using gas manufactured at our three plants. We could manufacture gas indefinitely for these homes, but after our 24-hour supply of natural gas was exhausted, there appeared the grim possibility that the 38,000 converted homes would go out.

Transcontinental looked for no miraculously quick river repair and searched for a temporary overland hook-up with lines in the northern part of the state. Our operating people immediately began seeking a solution in the use of propane gas.

South Jersey's "Texas Tessie" softball team poses for a publicity picture. V. F. Stanton, the author, is at left; Earl Smith, President, and "Texas Tessie" are in center; and Hugh L. Wathen, sales manager, is at right.

Our large industrial users were requested to get off the lines as quickly as possible and they complied. Now came the task of telling our story to the people.

We decided to be completely truthful in not minimizing the seriousness of the situation.

Our initial press release, issued at noon of the first day, told the full story. We reported what had happened and what solutions were being sought. We said that there was enough natural gas left in our lines to last until early Saturday. We asked users to conserve it in every way.

The release went to our local papers, the Philadelphia and New York papers, the various wire services and the radio stations in our territory. The statements were made by our President, Earl Smith.

Several years ago we had installed emergency propane facilities at both our Atlantic City and Glassboro plants to supplement our regular manufacturing

equipment should the need ever arise. The need was now upon us.

Plans were quickly made Friday morning, following the news of the break, and early that afternoon we started to lay temporary gas lines above ground to connect our propane facilities to our distribution system. We were to start vaporizing propane late in the afternoon and storing it in our holders. The pressure of the natural gas in our lines would be down to a point necessitating a changeover early Saturday morning.

We had enough propane at our Atlantic City and Glassboro plants to cover better than 48 hours. Arrangements were started to build up that supply with emergency truck shipments.

Switch to Propane

As soon as we were clear enough on the propane picture—and it was now late afternoon—we issued our second news release. We informed the public that we would change over to emergency propane early Saturday morning. We said the flame would look and smell different than natural gas and that pilots might have a tendency to go out. We were mighty happy to tell them that *we* weren't going out.

To augment our news releases we bought emergency spot announcements on four radio stations. I was asked by one of the stations to personally make a statement on their 6:40 PM newscast. I went over to the studio, read a prepared statement and then went back to the office for more work.

Propane gas was in the mains at about 6 o'clock Saturday morning. The phones came to life several hours later. As the morning wore on, our Atlantic City phone exchange was virtually swamped. Two operators were handling the board, 20 service clerks were handling the calls and passing them on to service crews. A similar situation was developing in the Glassboro office and in our three small branch offices.

Conversions and Surveys had the conversion work in the two districts well under control, and made many men available for emergency service calls. Hundreds and hundreds of temporary adjustments had to be made to appliances of every kind.

We handled numerous emergency calls—all of them the same day and many of them in a matter of minutes. Calls of a more routine nature were serviced as promptly as possible, but in many instances it required a day or two.

In almost every instance the people were understanding and cooperative—even sympathetic to our many problems. It was a gratifying demonstration of the better side of human nature.

We continued to issue periodic bulletins and the regular press releases. We were back on the air Saturday with emergency announcements. A station in Vineland sent a crew of three people here to Atlantic City—a drive of 30 miles—to make a recording on the situation.

Meantime, our operating people were gradually improving the quality of the mixture and by late Saturday afternoon they were getting a flame that looked quite good.

The Sunday morning newspapers again carried a full account of the situation, noting that the quality of the substitute fuel had been improved and asking for continued conservation measures. Newspaper advertisements carried much the same story.

Sunday morning dawned beautifully, almost like the day after a hurricane. The switchboards were down somewhere near normal, we were able to send home most of the service clerks who had reported for duty, and service crews were able to catch up with Saturday's holdover calls.

We were able to report in Monday morning papers that the situation was well in hand and that we were confident of being able to carry on until about Thursday when Transcontinental expected to have a temporary 6-inch line across the Delaware River.

Our press releases were now down to the one-a-day basis and the only item of interest was the progress of the emergency river crossing.

Divers located the severed 12-inch line and Transcontinental decided to pull 1100 feet of 6-inch line out from the Pennsylvania side of the river and weld it to the end of the broken 12-inch line which extended about 6000 feet to the Jersey side of the river.

Bad weather and rough water impeded operations and the repairs were not completed Wednesday night as originally scheduled but the lines were joined Thursday morning. Natural gas began to move again and we opened the valves at the Woodbury Heights, N. J., metering station about 3 o'clock that afternoon. Natural gas was back in our mains within several hours.

Back to Normal

Naturally, it was preceded by a wave of press releases and radio spot announcements. Friday morning's papers noted that natural gas service had been resumed and that operations were back to normal.

We then issued a final press release, thanking our customers for their cooperation, and thanking the many others who had helped—particularly the oil refineries and other public utilities who had made liquid propane available to us. We also announced that conversions would be resumed the following Monday after a lapse of a week. The Sunday papers carried a "Thank you" advertisement and we were able to write finis to a brief but hectic chapter.

A wire chief in Newark as well as a city desk in Philadelphia commended us on the forthright way in which we handled the situation. The final bouquet came in the form of a glowing editorial in one of our local daily papers.

It has been said:

"Know the truth and the truth shall make you free."

Tennessee Files 3 Applications To Increase Delivery Capacity

The Tennessee Gas Transmission Co., Houston, has filed three applications with the Federal Power Commission for authorization to construct pipe line facilities designed to increase the design delivery capacity of its transmission system by a total of 110 million cu. ft. of natural gas per day.

One application proposes to build a total of 253 miles of loop line; to install approximately 61,000 hp in existing compressor stations; and to construct approximately 100 miles of miscellaneous lateral lines in order to increase delivery to Iroquois Gas Co., Buffalo; Equitable Gas Co., Pittsburgh; and United Natural Gas Co., Oil City, Pa., by 45 million cu. ft. of natural gas per day.

Another application proposes to construct facilities necessary to increase the delivery capacity of the company's pipe line system by 40 million cu. ft. per day and the development of a gas storage project which would add 200 million cu. ft. per day of delivery capacity to Tennessee's system during periods of maximum customer demand.

The facilities would be used to make available on peak days an additional 194 million cu. ft. of natural gas to Northeastern Gas Transmission Co., a subsidiary of Tennessee, and to provide 46 million cu. ft. of gas per day to be used initially to build up Tennessee's storage position and subsequently to be made available for sale.

Tennessee's project would include approximately 438 miles of loop on its Buffalo and New England extensions; compressor units aggregating about 44,000 hp in existing or authorized stations; and approximately 14,000 hp in a new compressor station.

The remaining application seeks authorization to construct 25 miles of 26 inch loop line along the company's Buffalo extension and to install 2,000 additional horsepower at an existing compressor station.

These facilities would be used to transport 25 million cu. ft. of natural gas per day to Tennessee's northern rate zone for delivery to The Manufacturers Light and Heat Co., Pittsburgh.

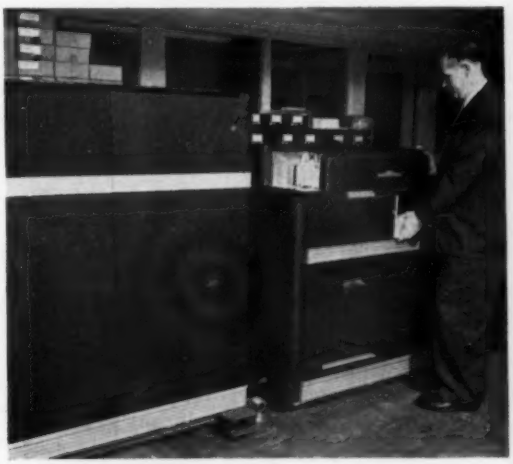
The estimated total cost of the three projects is $89,723,000—$36,241,000, $51,028,000, and $2,454,000 respectively.

Southern Cal. Gas Modernizes Pay Roll With Machine Equipment

by S. E. Johnson and J. K. Windsor

Mr. Johnson is staff assistant in the auditing department of the Southern California Gas Co., and Mr. Windsor is supervisor of machine accounting in the same department.

J. K. Windsor, supervisor of machine accounting, looks on as Robert Childs operates the alphabetic accounting machine.



The electronic calculator, used in the new payroll system, is operated by Clifford Dice of the auditing department.

As a part of the over-all modernization of its pay roll procedures, the Southern California Gas Co. recently inaugurated a new machine pay check preparation system for the major part of its operating pay roll. Only a few outlying geographical divisions will be unaffected by this modernization.

The over-all program was begun by this company last July with a change from semi-monthly to bi-weekly pay dates. At the time this change was made, the company's operating pay roll was divided into two sections, with sections being paid on alternate Fridays. By this method an even flow of pay roll work was achieved. This move affected approximately 5200 employees.

Effective January 1, 1951, a number of additional changes were made in pay roll procedures, preparatory to the introduction of machine preparation of pay checks. The system utilizes the former manual calculation of the employee's total gross earnings, from which point the balance of the job is handled through the use of International Business Machines equipment.

An important phase of the plan was the establishment of an up-to-date deck of master cards covering vital information pertinent to the computation of each individual's check, such as name, pay roll number, tax code exemption, hiring date, etc. In addition each master card was assigned an employee number. For this purpose a five digit number was assigned each employee, in alphabetic sequence, allowing about 17 blank numbers between each name for subsequent expansion. The employee number is extremely important to the smooth operation of the modernized method since it is the source for matching the various cards used in conjunction with actual pay check preparation.

A second important phase of this plan was the establishment of miscellaneous deduction cards. All deductions, other than tax deductions, now take the form of deduction cards. The responsibility of controlling fixed deductions is delegated to one individual and, therefore, any new deduction authorization of any type, or cancellations must be processed through this person. A combined form was also developed to facilitate the reference to each employee's authorized deductions. This form eliminates the numerous individual forms previously used for controlling each type of deduction on an independent basis, as well as providing one source document for all deductions when computing vacation advances or termination wages.

Following the manual computation of gross earnings under the new system, the overtime hours, overtime amount, subject earnings, straight time hours, total amount earned, personal expense and total gross earnings for each employee are summarized into pay roll totals. The pay sheets are reviewed for accuracy and are then released for key punching of this earnings data. The detail earnings cards are tabulated for comparison with the manual summarization to prove the accuracy of such cards for each pay period.

The next operation is to match the detail earnings cards against tax computation cards which include, on a decreasing scale, the remaining amount of earnings subject to Federal social security or state disability insurance taxes. The two decks of cards are then processed through the electronic calculator for comparison of the current earnings against the remaining taxable amounts to determine the true taxable earnings for the pay period. The actual tax computations, also performed by this machine, are based on the true taxable portion of the earnings for each individual. The computation of income tax withheld, however, is based on the total amount earned for each individual, less his personal exemptions.

This machine computation of taxable earnings is one of the greatest savings to the pay roll section. Prior to the adoption of this system, it was necessary to

compute for each pay period the amount of taxable earnings remaining for each employee by manually adding all taxable amounts earned to that time, in order not to exceed the maximum taxable earning figures set up by state and national law.

The earnings card, tax computation card and fixed deduction cards are next processed through the machine for calculation of the balance payable for the pay period, with this amount being summary punched, together with total earnings, total taxes and total deductions, into a card, referred to as a net draft card. Following this operation, all cards are machine sorted, together with the master (name) card, in proper order for printing of the pay checks.

Pay checks are produced on continuous form check stock and appear in employee number order within a given pay roll. Information appearing on the check includes:

- Employee name
- Pay date
- Pay period number
- Employee number
- Amount payable

In addition, the following information appears on the check stub:

- Employee name
- Overtime hours
- Overtime amount
- Straight time hours
- Total amount earned
- Personal expense amount
- Total gross
- Pay period ending date
- Taxable earnings for period
- Amount withheld for income tax
- Amount deducted for Federal old age benefit
- Amount deducted for State disability insurance or voluntary plan
- Total taxes
- Date of check
- Amount deducted for miscellaneous deductions (itemized)
- Balance payable

The continuous form check stock, controlled by the company's treasury department, is serially numbered for accounting purposes.

After pay checks have been run, the master card and net draft card (balance payable) are machine selected. The employee name is transferred by machine from the master card to the net draft card. The latter are then alphabetized (numeric sequence) and information from them is listed by employee on a check register, which also serves as a visual reference as to the computation of each employee's earnings, deductions and balance payable for the period.

The net draft cards also form the basis for bank reconciliation. For this purpose, as pay checks are cleared through the bank, they are forwarded to the tabulating section for punching of pay period, employee number and amount paid. These cards are matched by machine against the file of net draft cards. Unmatched net draft cards are then listed as outstanding checks for preparation of the bank reconciliation.

Staff assistant S. E. Johnson and clerk Mary Silvernale check the master cards.

The computation cards are also used by the tabulating section for preparation of cumulative earnings data cards. One of these cards is prepared for each employee for each quarter of the year. The quarterly cumulative cards are used to produce the quarterly tax returns. At the conclusion of a calendar year, the four quarter cumulative cards are summary punched into an annual card for preparation of income tax reporting form W-2.

The various earnings cards are also utilized to prepare data in more readily available form to the payroll section throughout the year. An example of this ready availability of essential information is the ease of preparing W-2 forms for terminating employees, which must be forwarded within 30 days of termination. Previously it was necessary to compute manually the amounts paid by checking the individual pay records. Now this figure is immediately available from the cumulative data card.

This ready availability of data will also increase the ability of the pay roll section to supply necessary information to other sections of the company.

The results obtained during the short period of time this procedure has been in effect have been gratifying. The procedure itself is operating satisfactorily and the pay checks and other reports are produced much faster than was possible under our former manual basis. In addition, this procedure has made possible a considerable saving of manpower.

FPC Issues Revised Regulation For Preservation of Records

The Federal Power Commission has announced availability of its regulations to govern the preservation of records of public utilities and licensees, incorporating amendments adopted by the commission October 17, 1950, effective January 1, 1951.

The amendments incorporate more specific general instructions and clarify the conditions under which certain types of records may be microfilmed and the microfilms retained in lieu of original records for required retention periods.

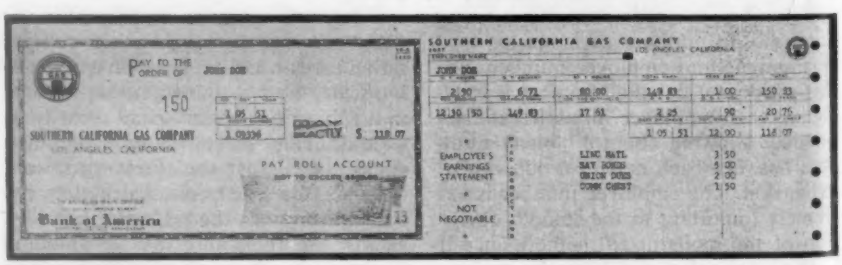
Copies of the regulations, priced at 15 cents each, may be obtained from the Publications Section, Federal Power Commission, Washington 25, D. C. The order number is FPC-A-8.

Big Gas Well Brought In In Leidy Field

Consolidated Natural Gas Co. reported that its subsidiary, New York State Natural Gas Co., has brought in a new natural gas well in the Leidy Field near Lock Haven, Pa., which appears to be the biggest well ever drilled in the Appalachian area.

The open flow of the well is estimated at between 100 million and 120 million cu. ft. a day. The company's next biggest well in this field, with an open flow of 61 million cu. ft. daily, is the Dougherty No. 1, which was the first of the company's four producing wells in the Leidy Field.

Eugene Seifert, field supervisor of operations for New York State Natural, said the new well was struck in a location described by geologists as the dome of the Leidy Field.



Numbered, continuous form check stock is used in preparation of payroll checks. Check stubs give more information for the employee.

With Gas versus Electric Cooking Seeing Is Believing

by Kathryn L. Barnes

Home Service Director, Equitable Gas Co., Pittsburgh

A SPECTACULAR visual demonstration showing the superiority of modern gas cooking over electric has recently been readied by the Equitable Gas Co. for presentation to dealers, home economists and other local groups.

The demonstration covers six major premises: Namely, that gas is cheaper (four to one in Equitable Gas territory), faster, cleaner, cooler, more easily controlled and more convenient. Basis of the demonstration is the evidence that point for point the gas range is more modern than the electric. Some features, like smokeless broiling, speed and low cost are exclusively gas. A few other features, such as automatic ignition, temperature controls and the like, are common to both and equal. In other respects the electric range is a makeshift adaptation of standard gas range design for the use of electric energy.

The design of the demonstration setting and the presentation of the accompanying talk have grown out of a series of comparative cooking tests completed jointly by the home service and utilization engineering personnel. These have been supplemented by effective ideas and demonstration ideas originated by others.

The eye-catching background utilizes a gas range and electric range, built by the same manufacturer and almost identical in every respect except their sources of heat. Each is connected to a metered supply line and is backed by a sturdy panel bearing a steam pressure gauge and a clock. The two clocks, with sweep second hands, are used to time separately the individual cooking operations.

Centering the setting is a large panel with a bank of 45 100-watt bulbs and one 50-watt bulb arranged in different series. These are flashed as needed to illustrate the enormous amount of current used by single or multiple units in the electric range. Below this bank of lights is the series of placards which point up the steps of the demonstration.

As seeing is believing, identical operations are performed simultaneously on the two ranges so that the variants in cooking speed, range conditions, etc. can be clearly brought out.

Pictured here are the home service directors of three Pittsburgh gas companies —from left to right, Miss Ruth Severson, Peoples Natural Gas Co., Miss Flora Dowler, Manufacturers Light and Heat Co., and Miss Kathryn Barnes, Equitable Gas Co.

Where tests would take too long, as in roasting similar cuts of meat, huge blow-ups of before and after pictures are mounted on the placards. These pictures are used to disprove the extravagant claims that gas cooking increases meat loss by shrinkage. Company tests have proved that with the same roasting time and temperature there is no difference in shrinkage or in the amount of remaining juices. The difference is in the cooking cost: For a ten-pound beef roast—1.65 cents for gas, 6.4 cents for electricity.

Other money-saving features which are brought out are the savings on cost of equipment and on installation costs. Modern gas ranges cost from $30 to $100 less than electric models. In the Pittsburgh area, installation of electric service of sufficient capacity costs $62.50, of which $30 is paid by the electric company. As compared to this, a gas range installation costs $10.

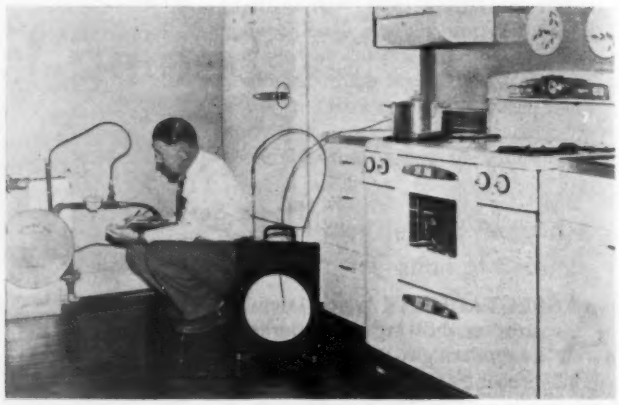
But the big cost difference is in operation. Based on the utility rates in Equitable territory: 60 cent 1000 Btu gas and two cent per kwh electricity, the demonstration proves gas top burner cooking cheaper by a ratio of six to one, oven roasting four to one, and broiling four and one-half to one.

To demonstrate the factor of faster cooking, two cups of water in whistling teakettles are brought to boil on each range. On the gas range, the water boils in two minutes and 58 seconds on the regular burner; on the electric it takes six minutes. Using the giant burners takes two minutes and 30 seconds on the gas; four minutes and 30 seconds on the electric.

The simplicity of turning the valve on the gas range for any one of a hundred shades of heat for exact cooking speed is contrasted with the set variations of controls which must be learned with the electric. This ease of control and flexibility of use in the gas range becomes clearly evident in a simple demonstration with pressure saucepans containing one cup of water and started at top heat on

Miss Kathryn Barnes (the author) and R. L. Sindell are shown in the picture above. At the right W. B. Ciprella makes notes of test results.

CHECKING COMPARATIVE COOKING TESTS ON GAS AND ELECTRIC RANGES



both ranges. When the desired pressure is reached on the gas range, the valve is turned to simmer speed and the pressure stays at the same spot. When the same action is taken on the electric range, however, the pressure continues to rise because of the heat retained in the electric element.

Graphic charts also show the temperature curves registered in the controlled test when both ovens were heated to 400°.

Though the element of cleanliness is stressed throughout the demonstration, a small spillover of butter fat on both ranges quickly proves the superiority of the gas range. The gas flame quickly consumes the smoke, whereas the electric element continues to smoke and smell for several minutes. It is this factor which accounts for the smokeless broiling in a gas range.

A recapitulation of all these points, emphasized with small placards set on the gas range, drives home the six major premises which prove the superiority of modern gas cooking.

AGA Laboratories Issue 4 Research Publications

Domestic gas research, mixed gas research and industrial and commercial gas research are represented in four new research publications released by the American Gas Association Laboratories. All report work was completed under the PAR Program.

Two of the publications are devoted to general utilization studies under the domestic gas research program. These are Research Bulletin 59, "Investigation of the Effect of Gas Flame Impingement on Combustion Characteristics of Domestic Range Top and Water Heater Burners," and Report 1167, "A Study of Large Single Port Atmospheric Gas Burners—Flashback Characteristics on Ignition."

Bulletin 59 covers the effects of flame impingement on horizontal surfaces when burning natural, mixed and manufactured gases, using contemporary range giant burners and water heater burners. It extends the work reported in Bulletin 43, "Investigation of Extent of Gas Flame Impingement Allowable for Satisfactory Combustion."

Report 1167 represents an initial attack on design problems associated with large single port atmospheric gas burners. Previous burner research has been primarily concerned with obtaining fundamental information on the design of multiple port burners. The report is concerned with the major factors affecting flashback on ignition.

Devoted to mixed gas research, Bulletin 60, "Summary Bulletin, Interchangeability of Various Fuel Gases with Manufactured Gases," summarizes the findings presented in four individual reports previously published. It conveniently presents, in handbook form, data on the composition and performance of various mixtures interchangeable with six base manufactured gases.

In the industrial and commercial field, a study at bringing about an over-all improvement in commercial cooking equipment was undertaken. Bulletin 61, "Investigation of Heating Contemporary Gas Food Service Equipment with Power Burners," explores the possibilities of the use of power burners in contemporary hot top commercial ranges and unit broilers. In the experimental installation it was demonstrated that power burners could be employed in a satisfactory manner and that there is a likely possibility of improving such factors as thermal efficiency, preheating speeds, heat distribution and gas maintaining rates through their use.

These bulletins may be obtained from the American Gas Association Laboratories, 1032 East 62 St., Cleveland 3. Prices are: Bulletin 59—.75; Report 1167—.50; Bulletin 60—4.00; and Bulletin 61—1.00.

Consumers Power Co. Plans $48,000,000 Construction

A $48,000,000 construction program for 1951 has been announced by Consumers Power Co. to meet national defense demands for electricity and natural gas, together with civilian growth in its territory of more than 1,300 Michigan communities. It is the largest expansion budget in the company's history.

D. E. Karn, first vice-president, stated that the budget approved by the directors calls for $9,000,000 for gas department expansion and improvements.

"Our $9,000,000 budget for gas department projects looms larger in comparison with former years," Mr. Karn said. "This is because of the great expansion going on in this branch of the business. We are improving our distribution facilities throughout our integrated gas system, not only by the renewal and extension of pipe lines and the replacement of many mains with larger ones but also through the installation of about 100 regulator stations. This will facilitate distribution of gas at minimum pressures."

Consumers Power Co. serves more than 316,000 gas customers in 258 communities, including more than 100,000 space heating customers. Natural gas sales for 1950 exceeded 28-billion cu. ft., a 39 per cent increase over 1949.

Public Liability Considerations Involved In Utility-Contractor Relationship

by Milford Springer

Counsel for Southern Counties Gas Co. of California

CONSTRUCTION totalling millions of dollars is performed by independent contractors for utilities each year. The importance of minimizing injuries to persons and damage to property by such contractors is manifest from at least two viewpoints: (1) human and economic conservation and (2) good will.

The magnitude of the independent contractors' performance in building utilities' structures, pipe lines, powerlines and other facilities is recognized, when one learns that during 1951 it is estimated that the two gas companies and the three gas and electric companies in California will have $60,000,000 in additions and betterments built by contractors.

An employer-utility is ordinarily not liable for the negligence of an independent contractor, including that contractor's employees. In addition, an independent contractor or its employees cannot receive the benefits of the workmen's compensation law at the expense of a utility. In contrast, a utility is liable to others for the negligence of its employees, and must pay workmen's compensation to its employees injured within the scope of their duties. It is essential, therefore, to know the definitions, tests, exceptions and remedies, in connection with engaging persons to perform work, before one can provide ample legal protection for the utility.

1. Definitions

The judicial definition and the labor code definition of an independent contractor are the same.[1] Any person who engages in an independent occupation and contracts to perform work for a specified recompense, and who is responsible to his principal for the result only and is not subject to control of the particular means by which the result is accomplished, is an independent contractor.

As we noted, usually when an employee is injured in the course of his employment, the employer is liable, regardless of negligence, for the compensation provided by the labor code.[2] The relationship of employer and employee exists whenever the employer retains the right to control the details of how the work shall be done as well as the results desired.[3] An employee may quit, but an independent contractor has a legal obligation to perform according to the contract. In California, we have a liberal interpretation of the workmen's compensation law in favor of the employee-workman, and the burden of establishing the defense of the independent contractor relation is on the employer.[4] Furthermore, juries are sympathetic and generous to persons injured by employee of utilities, because of their concept of the large impersonal corporations' ability to pay.

2. Tests

The distinction between the status of an independent contractor and that of an employee is based upon many considerations. The most important test, however, is the right to assert authoritative control over the manner and means of doing the work. If the employer has the right to exercise complete control, an employer-employee relationship exists whether or not that right is exercised for all details.[5] The right to exercise complete control, rather than mere suggestion as to detail, must be shown to prove one an employee.[6] The other tests are: "(a) whether or not the one performing services is engaged in a distinct occupation or business; (b) the kind of occupation, with reference to whether, in the locality, the work is usually done under the direction of the principal or by a specialist without supervision; (c) the skill required in the particular occupation; (d) whether the principal or the workman supplies the instrumentalities, tools, and the place of work for the person doing the work; (e) the length of time for which the services are to be performed; (f) the method of payment, whether by the time or by the job; (g) whether or not the work is a part of the regular business of the principal; and (h) whether or not the parties believe they are creating the relationship of employer-employee."[7] Strong evidence in favor of an employment relationship is the right to discharge a person at will.[8]

It is possible for an employee of an independent contractor to become the special employee of a utility and then the utility would be obligated to pay compensation to such a worker in case of an industrial accident. Such a situation removes the utility's independent contractor insulation to liability. An interesting case of a general and special employment relationship resulted in a large award of compensation to a man who was severely injured while repairing his truck on a highway. The injured truck driver was employed by a sub-contractor doing hauling work for the general contractor on a construction job. The general contractor's superintendent had some power to control the truck driver and did give him instructions where to load. During the course of the performance of the sub-contract the truck driver-employee of that independent contractor came under the direction of the general contractor, who had some right of control, and a dual employment relationship existed, making both the general contractor and sub-contractor liable to pay workmen's compensation for injuries sustained by the truck driver.[9]

Usually a general contractor does not have control of the employees of a sub-contractor. A court ruled that a general contractor was immune from liability to an employee of a sub-contractor, who was injured in a fall while using an unfinished concrete form, which was built by the general contractor, as a painter's scaffold.[10] The sub-contractor also had the duty of furnishing his injured employee with equipment essential to safe working conditions.

When a utility engages two independ-

Presented at Technical Conference, Pacific Coast Gas Ass'n, Coronado, Calif., February 1951.

ent contractors to perform separate work on a building, and an employee of one co-contractor causes injury to an employee of the other co-contractor, the utility is not liable for damages. A case that illustrates this conclusion arose when an employee of one contractor negligently assured the employee of another contractor on a construction job that a long ladder was secure. When the man ascended the ladder, it swung out from the top and he fell through the opening in the second floor of the building to the concrete on the first floor. He was so seriously injured that he was in the hospital two months and was unable to follow his occupation of construction foreman two years later. The California Supreme Court affirmed the jury's verdict of $22,000 against the negligent employee and his employer, the co-contractor. The court ruled that the co-contractors on the building owed to the employees of each other the same duty of exercising ordinary care for their safety during the performance of the work as they owed to the public.[11]

An independent contractor is responsible to any person rightfully on the property for injury caused by the contractor's negligent creation of dangerous conditions during the progress of the work.[12]

3. Exceptions

There are exceptions to the general rule that an employer ordinarily is not liable for the negligence of an independent contractor or of employees of that contractor.

One class of exception is based upon the employer's own negligence in engaging an incompetent contractor, and he may become liable to personal injuries due to the contractor's lack of skill.[13]

Another exception is when the employer negligently orders something to be done by the independent contractor which is inherently dangerous or wrong; then the employer becomes liable. Examples are cases where specifications for construction are defectively prepared, so that following them necessarily results in encroaching on adjoining land, or the removal of lateral support from another's land, causing a cave-in.[14]

An important exception involving utilities is the nondelegable duty to exercise ordinary care for the public's safety in making excavations or obstructions in streets and sidewalks. The utility, in such cases, is liable for injuries to others caused by the negligent acts of an independent contractor. Thus, where by statute or ordinance a utility is prohibited from excavating or obstructing a public street without a permit, it is liable for damages caused by the failure of its contractor to maintain proper warning signals whether the work was done with or without a permit. If a utility has a permit it has assumed the duty of the municipality to maintain the street in a safe condition, and if no permit is obtained the utility has created a nuisance by violation of a law.[15] Indemnity provisions in contracts are designed to protect the utility from the consequences of this exception surrounding non-delegable duties.

4. Recommendations

The standard contract between utilities and their independent gas and electric contractors can be written (1) to protect the utility from financial loss for damage to persons and property, (2) to promote economic and human conservation by enforcing proper safety standards, and (3) to foster better public relations with a reduction in accidents, damage, fires, explosions and electrocutions involving adverse publicity.

Since the utility pays for adequate insurance, either directly or indirectly, in a contract with an independent contractor, it should require the carrying of ample insurance and the reimbursement for any valid claim or judgment against the utility resulting from the negligence of the independent contractor. One standard indemnity provision in contracts requires the independent contractor to pay for all damages to persons or property, excepting only injuries to persons or property caused solely by negligence of employees of the utility.

It is recommended that utility contracts require performance in compliance with the safety rules of the state division of industrial safety and of the company. The following contract provisions, called "general conditions," are utilized by a utility in conjunction with a comprehensive indemnity clause, and such provisions have maximum advantages with about the minimum of risk of monetary loss for the utility:

"The contractor shall perform all work under the contract in conformity with all valid laws, ordinances, franchises, rights of way, permits, rules and regulations in anywise affecting the doing of the work, including all applicable rules, standards, codes and orders of the division of industrial safety of the state of California and the National Board of Fire Underwriters and all applicable Federal limitation and price ceiling orders and regulations.

"The contractor shall, while on company premises, or performing work on or about company facilities, observe such safety practices as the company shall prescribe as necessary for the protection of company personnel and property, and upon request shall limit smoking and the use of fire, including but not limited to welding and torch cutting, to such locations and occasions as are specifically authorized in writing by the company.

"The contractor shall perform the work as an independent contractor and not as an employee of the company, and any provisions in the contract, the specifications or these general conditions which may appear to give the company the right to direct the contractor as to the details of the doing of any work to be performed by the contractor, or to exercise a measure of control over said work, shall be deemed to mean, and shall mean, that the contractor shall follow the desires of the company in the results of the work only and not in the means whereby said work is to be accomplished, and except as hereinafter in this paragraph provided, the contractor shall use his own discretion and shall have complete and authoritative control over the work and as to the details of the doing of the work. The company reserves the right of approval over the general methods employed by the contractor in the performance of the work, but only in so far as they may affect the maintenance of good public relations and the safety of company personnel and facilities, and it is specifically agreed that the exercise of such inspection and control of the work being performed as is necessary to accomplish the foregoing shall in no case be construed or considered as controlling or attempting to control the performance of the work in such a manner as to affect the independent contractor relationship."

It is possible to retain limited control

THIS is the third paper in a series by the author relating to the liability of utilities for injuries to persons and damage to property.

See: "A Utility's Liability for an Attractive Nuisance," proceedings of PCGA, 1943, and "A Utility's Liability for Injury to Trespassers, Licensees, Business Visitors, and Privileged Persons," proceedings of PCGA, 1948.

References

1. *California Employment Commission* v. *Los Angeles Down Town Shopping News Corporation,* 24 C.2d 421, 424 (1944); Labor Code, Section 3353.

2. Labor Code, Section 3600.

3. *Riskin* v. *Industrial Accident Commission,* 23 C.2d 248, 253 (1943); *Press Publishing Company* v. *Industrial Accident Commission,* 190 Cal. 114, 121 (1922).

4. *Drillon* v. *Industrial Accident Commission,* 17 C.2d 346, 350 (1941). *Schaller* v. *Industrial Accident Commission,* 11 C.2d 46, 51 (1938).

5. *Empire Star Mines Co.* v. *California Employment Commission,* 28 C.2d 33, 43 (1946).

6. *Burlingham* v. *Gray,* 22 C.2d 87, 99 (1943).

7. *Empire Star Mines Co.* v. *California Employment Commission,* 28 C.2d 33, 43 (1946).

8. *Perguica* v. *Industrial Accident Commission,* 29 C.2d 847, 860 (1947); *Baugh* v. *Rogers,* 24 C.2d 200, 206 (1944).

9. *Industrial Indemnity Exchange* v. *Industrial Accident Commission,* 26 C.2d 130 (1945).

10. *Scott* v. *Fuller Co.,* 41 C.A.2d 501, 507 (1940).

11. *Perry* v. *D. J. & T. Sullivan, Inc.,* 219 Cal. 384, 388 (1939).

12. *Hall* v. *Barber Door Co.,* 218 Cal. 412, 419 (1933).

13. Restatement of Torts, Section 411.

14. *Hedstrom* v. *Union Trust Co.,* 7 C.A. 278 (1908); *Wharam* v. *Investment Underwriters,* 58 C.A.2d 346 (1943); *Kaufman* v. *Tomich,* 208 Cal. 19 (1929).

15. *Sawaya* v. *De Cou,* 60 C.A.2d 146, 149 (1943); *Snow* v. *Marian Realty Co.,* 212 Cal. 622 (1931); *Luce* v. *Holloway,* 156 Cal. 162 (1909).

16. See: *Mountain Meadow Creameries* v. *Industrial Accident Commission,* 25 C.A.2d 123, 127-9 (1938); *Empire Star Mines Co.* v. *California Employment Commission,* 28 C.2d 33, 45 (1946).

17. *La Malfa* v. *Piombo Bros.,* 70 C.A.2d 840, 848-9 (1945); *Empire Star Mines Co.* v. *California Employment Commission,* 28 C.2d 33, 45 (1946); See: *Umsted* v. *Scofield Engineering Construction Co.,* 203 Cal. 224 (1928).

18. *Carlson* v. *Industrial Accident Commission,* 213 Cal. 287, 289 (1931); *Lewis* v. *Constitution Life Co.,* 96 C.A. 2d 191, 194 (1950).

over an independent contractor without losing the utility's ordinary immunity from liability for that contractor's negligence. For example, the right to inspect the independent contractor's work as it progresses is designed to obtain satisfactory results, and does not place responsibilities upon the utility that accompany the relationship of employer and employee.[36]

It is reasonable to predict that a court would decide that a utility can enforce safety rules, agreed to by an independent contractor, by dealing with the independent contractor at the supervisory level, without losing its immunity. In such a case the utility is not directing the details of what shall be done, and when and how it shall be done. It is permissible for a utility to retain a control less than that which is necessary to subject it to liability as master. A utility may forbid work being done in a manner likely to be dangerous to the utility's personnel or property or to others, but it must use reasonable care in exercising such limited control.[37]

Although the language of the contract is not controlling,[38] it is recommended that the intent of the parties be expressed to make it clear that the limited control retained by the utility is for the purpose of assuring satisfactory performance producing the desired result with adherence to safety regulations, but without affecting the independent contractor relationship. In addition, when an adequate provision is included in the contract requiring the contractor to hold the utility harmless from all claims for injuries to persons or damages to property, excepting those caused by the sole negligence of the employees of the utility, then the utility has some freedom of action in its relations with the contractor without automatically incurring a financial responsibility or loss.

Supreme Court Rejects Ban On Utility Strikes

The Supreme Court, on Feb. 26, struck down a Wisconsin law which banned strikes by public utility workers and required them to submit labor disputes to compulsory arbitration.

Chief Justice Fred M. Vinson delivered the 6-to-3 decision.

The ruling was on an appeal by a transportation workers' union which attacked validity of the state's "public utility anti-strike law."

The union said Florida, Indiana, Kansas, Massachusetts, Michigan, Nebraska, New Jersey, North Dakato, Pennsylvania and Virginia has enacted similar laws.

The union contended the Wisconsin law conflicts with rights given workers by the National Labor Relations Act and violates the Constitution by imposing involuntary servitude and by invading rights of free speech, public assemblage and freedom to contract.

Justice Vinson said the Wisconsin anti-strike law conflicts with the National Labor Relations Act, and therefore cannot stand.

The union involved is the Amalgamated Association of Street, Electric, Railway and Motor Coach Employees of America, Division 998, representing employees of the Milwaukee Electric Railway and Transport Co.

Texas Eastern and Algonquin Win FPC Certificates

Construction work on Texas Eastern Transmission Corporation's new 791-mile pipe line, which was authorized by the Federal Power Commission on Feb. 28, will begin immediately, according to George T. Naff, executive vice-president of the company.

FPC authorization of the new natural gas project comes at a particularly fortunate time not only for southern New England, which the new line will supply, Mr. Naff said, but also for the urgent needs of national defense industry in other states.

The new pipe line, 30 inches in diameter, will increase Texas Eastern's peak day delivery capacity from 740,000,000 to 1,205,700,000 cu. ft. of natural gas, 220,000,000 cu. ft. daily of which is destined for Algonquin Gas Transmission Co. for resale to utilities in Connecticut, Rhode Island and Massachusetts, including Boston. This means, Mr. Naff pointed out, that Texas Eastern will be the largest transcontinental supplier of natural gas to New England.

Aerial surveys of the pipe line route have already been completed, he said, and ground surveying and acquisition of right-of-way have begun. First shipments of steel pipe have already been received, and the entire project is scheduled for completion in time for service in the winter of 1951-52.

Texas Eastern's new line will extend from Kosciusko, Mississippi, through northwestern Alabama, Tennessee, Kentucky and southeastern Ohio to Connellsville, Pennsylvania, where it will join the existing Inch Lines. From Connellsville a new pipe line will be built to Texas Eastern's and New York State Natural Gas Corporation's new jointly-owned 105-billion cubic foot Oakford gas storage field.

Seven compressor stations will be built on the new pipe line and six stations will be added to the present Texas Eastern System east of Connellsville. These stations, aggregating 98,900 horsepower, will increase the gas-pumping power of the entire system to a total of 376,300 horsepower.

In addition to the New England area, the enlarged Texas Eastern system will provide additional supplies of natural gas in New Jersey, Pennsylvania, West Virginia, Ohio and Missouri.

Variety of Gas Legal Problems Involved In 1950 Higher Court Decisions

by Leo T. Parker

Attorney at Law, Cincinnati

HIGHER courts rendered important and outstanding decisions concerning municipal gas departments and gas corporations during the year 1950. This review of some of the cases ranges from the extent of federal authority to gas explosions.

Not Municipal Bonds

Recently a higher court held that a city may pledge revenues from the sale of gas for public purposes, and that there is no violation of state laws or constitutional provisions that prohibit indebtedness not approved by voters.

For example, in State v. City of Pensacola, 40 So. (2d) 569, the testimony showed facts, as follows: The City of Pensacola adopted an ordinance authorizing the issuance of $1,700,000 of paying certificates to pay the costs of improving or paving certain streets of the city and pledged a portion of the utilities service taxes to pay for the construction. The ordinance states that the revenue certificates are authorized by the charter, and that it is a legal function or duty of a municipality to maintain streets in a safe condition for the inhabitants. Actually the city adopted an ordinance which provided levying a tax on the sale of gas. The paving certificates, with interest, would be paid solely from the pledged utilities service taxes or from special assessment lien funds situated on either side of the streets paved and by the use of funds obtained by the issuance of paving certificates; it was contemplated that the pledged utilities service taxes would be sufficient to retire by payment the paving certificates in the sum of $1,700,000, and interest. Hence, the general taxing power of the city is no manner pledged or obligated to pay the pavement certificates nor to guarantee the making up or payment of deficits, if any, arising from the sale of the paving certificates.

In subsequent litigation the higher court held these paving certificates, payable only from pledged taxes on sale of gas or from special assessment lien funds, are not "municipal bonds." Hence the certificates need not be approved by voters, as provided by the state constitution with regard to bonds. This court said:

"The question is: Does the City of Pensacola have power under its charter or other statutory authority, to pledge a portion of the net proceeds of the utilities services taxes to the payment of paving certificates without the issuance thereof first having been approved by the qualified electors of the City of Pensacola, pursuant to the Constitution of Florida. . . . The repair, pavement and construction of streets and sidewalks are clearly municipal purposes. The utilities tax is pledged for a period of approximately twenty years to pay the paving certificates. The buyers of the certificates are on notice that payment cannot be had or expected from any other source. The certificates are not liens against the property of the city, neither can they be made a charge of any kind against the property of the taxpayers of the City of Pensacola or on the taxing resources thereto."

For comparison, see State v. City, 24 So. (2d) 50, which involved certificates of indebtedness payable from the income of enumerated utilities owned by the city. The city owned and operated a sewer system and supplied its inhabitants with gas and water. For various reasons it became necessary to improve and extend the service of the utilities to other sections of the city. In financing the project, the city by ordinance combined the three utilities and pledged the net revenue of the consolidated operation to the payment and retirement of $550,000 in municipal utility revenue certificates.

The higher court held the ordinance valid.

National Labor Relations Board

Considerable discussion has arisen from time to time over the legal question: When is an employer within the scope of the National Labor Relations Board?

Recently a higher court ruled that the National Labor Relations Board has jurisdiction of an employer who supplies only five per cent of the gas needed and used in interstate commerce.

For example, in National Labor Relations Board v. Mid Gas Co., 183 Fed. (2d) 451, the higher court held that where an employer supplied the residue of its gas operations to a distributor, who in turn, supplied several users, whose businesses affected interstate commerce, the employer's business substantially affected interstate commerce so as to give the National Labor Relations Board jurisdiction. This is true although the residue is only five per cent to ten per cent of the amount of gas needed by the distributor. This court said:

"To protect the commerce which is substantially affected by the total supply of gas, we find it necessary to assert jurisdiction over the labor dispute with the respondent, whose distribution to the total supply of gas is representative of other suppliers. . . . The congress fixed no standard of degree by the use of which it can be said, as a matter of power rather than of wise policy, that a particular amount of probable direct interference with interstate commerce is too little to come within its cognizance."

Confidential Relations

Modern higher courts consistently hold that if an employe attempts to use confidential information received from a past employer, such employe will be enjoined and prevented from using this confidential information for the benefit of a new employer and to the detriment of his past employer.

For example, in Suburban Gas Service, Inc. v. Higgins, 220 Pac. (2d) 798, the testimony showed facts, as follows: The Imperial Gas Co. has been selling gas in the Hemet area of Riverside County for 23 years. From 1941 to 1945, one Dorsten acted as its agent there. In 1945, Imperial appointed Dorsten as its distributor and sold to him certain equipment and a list of customers. The contracts provided that for ten years he should act as sole distributor, and should buy gas only from Imperial; that if he violated the agreement Imperial might sell directly to, or serve, any customers in the area; and that a stated part of the

purchase price need not be paid if he fully complied with the contracts.

Dorsten purchased only half of his gas from Imperial in 1948, less in 1949, and notice of default was given by Imperial. As a result of negotiations $4,500 was paid by Dorsten, and a mutual release was executed in October, 1949, cancelling the 1945 contracts and completely releasing each party from all obligations or claims arising therefrom. Dorsten then sold his business to Suburban Gas Service, Inc., and Imperial began to solicit customers and sell gas in this area. One Higgins had worked for Dorsten, delivering gas to customers, before the contracts of 1945 were executed. He continued to work until he was discharged by Dorsten. Some six months later he began to work directly for Imperial.

Suburban Gas Service filed suit and the court was asked to restrain Higgins and the Imperial from soliciting any customers served by Higgins while in the employ of Dorsten.

The higher court granted an injunction preventing Higgins from soliciting any customers in the area previously solicited and served by Higgins. However, the higher court refused to enjoin Imperial from doing business in the area, and said:

"Imperial had operated there for 23 years, had never given up its right to sell its products there, any right of Dorsten to sell for it had been cancelled, and the rights now claimed are based upon Dorsten's violation of his own agreement to act for Imperial."

Failed to Lock Valve

According to a recent higher court a gas corporation is not liable to damages for an explosion caused by failure of its employe to padlock an outside valve to prevent its being turned on before the gas lines inside the house are tested and approved.

For illustration, in Brett v. Memphis Light, Gas & Water Division, 232 S. W. (2d) 360, the testimony showed facts, as follows: One Brett was having a residence for his own use built by a contractor. Before it was completed Brett made a verbal contract with Memphis Light, Gas and Water Division to supply cooking and heating gas on a monthly flat rate basis, no meters being then available. When a gas employe went out to the house to inspect and test the gas pipes in the house he found an opening in the pipes. The valve was left closed tight but *not* sealed or padlocked. The gas employe told Brett that he would have to have the opening capped before they could turn on the gas supply. Brett instructed his heating contractor to attend to this matter. Later Brett called the contractor who informed him that he had gone out and closed the opening and had so reported to the gas department, but in fact the opening had *not* been closed. Soon afterward Brett received a letter from the gas department verifying its willingness to supply gas on a monthly basis, with a paragraph that it intended to install a gas meter "on your premises as soon as we are in position to do so."

The following day Brett first tried to turn on the gas inside the house but found that no gas was coming through the line. He then went next door, borrowed a wrench and turned the valve outside the house, went inside and succeeded in lighting the bathroom heater but could not get the pilot light on the floor furnace to light. About a half hour had elapsed since the outside valve was turned on when an explosion occurred, severely damaging the structure. Brett sued the Memphis Light, Gas and Water Division for damages. He alleged that the gas employe was negligent (1) in failing to come out to his property and test the pipes; (2) in failing to padlock the valve so that the gas could not be turned on, and (3) in failing to inform him in the letter not to turn on the gas before another inspection by the employe. Brett testified that when he received the letter from the gas department he thought that it meant that the "service was ready to turn on."

Notwithstanding these contentions the higher court refused to award Brett any damages, and said:

"How could it be reasonably anticipated by the defendant (Memphis Light, Gas and Water Division) or for that matter by any mature person, that such conduct would occur in the face of a known danger that Shook (contractor) had been expressly employed? The defendant is relieved of liability."

Considerable discussion has arisen from time to time over the legal question: When and under what circumstances may the Securities and Exchange Commission have jurisdiction of a gas corporation which does purely intrastate business? According to a recent higher court the answer is: The Securities and Exchange Commission has jurisdiction over a gas corporation which does purely intrastate business, if the corporation sells or distributes its stock and securities outside the state.

For example, in Long Island Lighting Co. v. Securities & Exchange Commission, 183 Fed. (2d) 45, the question was presented to the court whether the Securities and Exchange Commission had jurisdiction over the Long Island Lighting Co. and its subsidiaries, Queens Borough Gas and Electric Co. and Nassau & Suffolk Lighting Co. These are utility companies incorporated under the New York Transportation Corporations Law. They distribute electricity and gas in the counties of Nassau and Suffolk and the Borough of Queens.

It was urged that the commission has no jurisdiction over these companies because their operations are wholly *intrastate*.

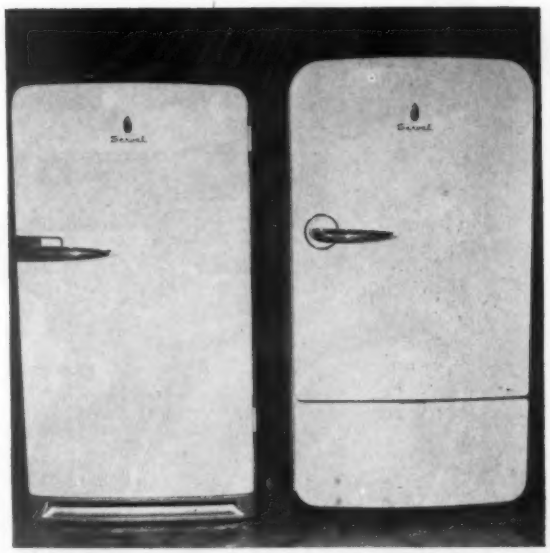
During the trial the testimony showed that the companies sold and distributed a portion of their stock to purchasers and holders outside the state of New York. In view of this testimony the higher court held that the companies are within jurisdiction of the Securities and Exchange Commission. This court said:

"A sufficient answer is that interstate distribution of Long Island's securities brings it and its subsidiaries within the coverage of the federal act."

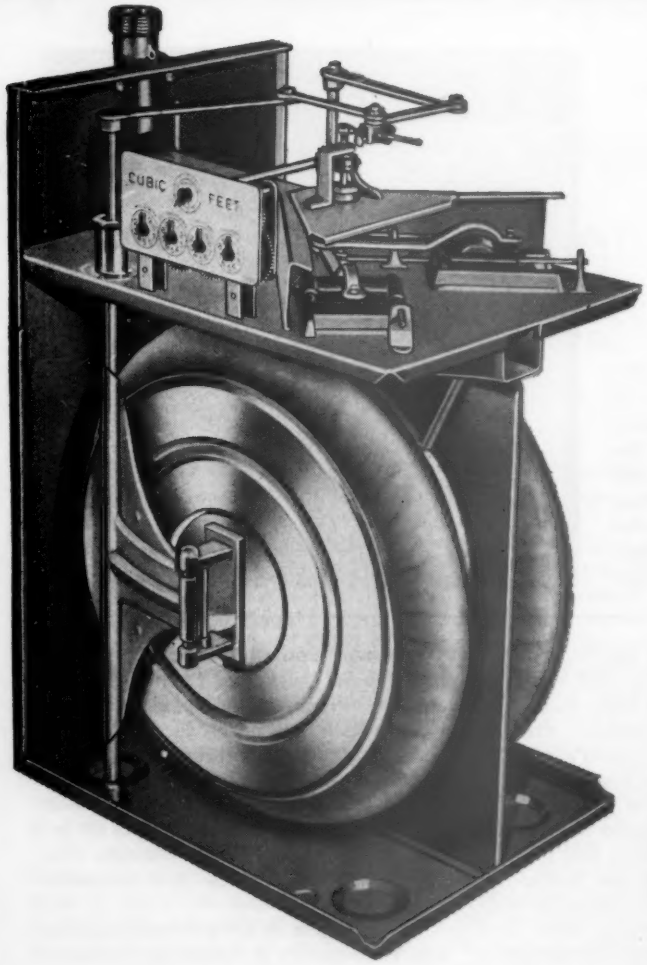
Also, this court held that in formulating a plan for consolidation and recapitalization of the Long Island Lighting Co. and its subsidiaries, under the Public Utility Holding Company Act, the Se-

(Continued on page 46)

Bigger Inside—Smaller Outside



Changes in the new 1951 Servel refrigerators allow "more inside space, less outside space." The 1951 Servel at left, with nine cu. ft. of food capacity, is visibly smaller than last year's eight cu. ft. Servel, at right.



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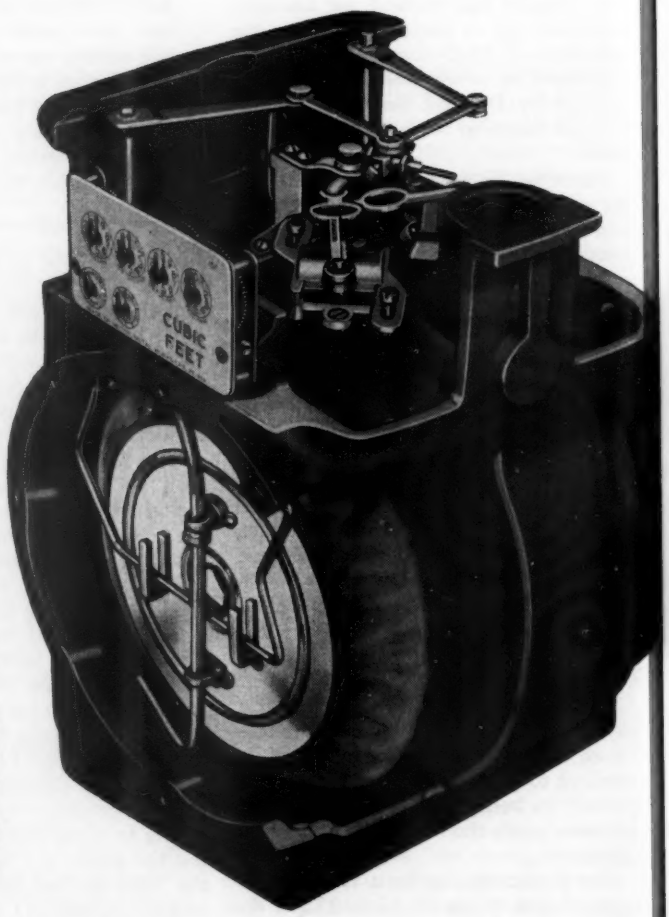

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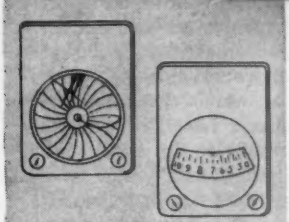
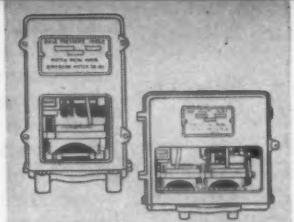
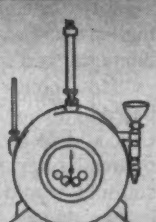


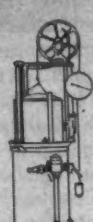
PNEUMATIC TRANSMITTERS AND RECEIVERS
(Write for Bulletin CT-49)



BASE PRESSURE AND BASE VOLUME INDEX
(Write for Bulletin E-12)



WET TEST METERS
(Write for Bulletin AG-3)



METER PROVERS
(Write for Bulletin AG-1)

DESIGN

throughout the line

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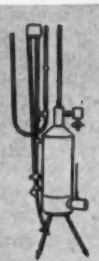
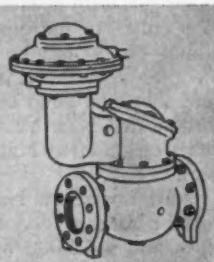


CALORIMETER
(Write for Bulletin AG-2)



CBV REGULATOR
(Write for Bulletin 50-A)

R. H. HARGROVE IS APPOINTED NEW PAD DEPUTY

R. H. Hargrove

R. H. Hargrove, President of Texas Eastern Transmission Corp., has been appointed acting assistant deputy administrator in charge of gas matters for the Petroleum Administration for Defense. Mr. Hargrove will serve in this capacity, Secretary of Interior Oscar Chapman announced, until a permanent organization for the Gas Industry in the National Defense Program has been formed, but not beyond April 1.

A former President and director of the American Gas Association, Mr. Hargrove has been prominent in the natural gas industry for the past 20 years. Recently, he has been a member of the National Petroleum Council, oil and gas industry advisory group to the Interior Department.

Mr. Hargrove was formerly vice-president of United Gas Corp. of Shreveport, and an officer of several of its operating subsidiaries. In 1947 he left United to become President of Texas Eastern, which owns and operates the Big Inch and Little Big Inch natural gas pipe lines.

MANY COMPANIES PLAN FOR UNDERGROUND STORAGE

Increasing interest in the acquisition of natural gas storage pools near the market area is continuing as six more companies applied to the Federal Power Commission for authorization to build facilities for the operation of such pools.

Ohio Fuel Gas Co., Columbus, has applied for authorization to construct pipe line facilities for the conversion of six natural gas producing pools in Ohio to storage pools. The pools have an ultimate storage capacity of about 36 billion cu. ft., the application states.

Ohio Fuel plans the construction of about 74 miles of high pressure storage project pipe lines, the increase of 10,780 hp in compression facilities, and the construction of approximately 47 miles of 20-inch line to transport the gas to market area.

Total estimated cost of the construction is about $6,425,200.

Three of the pools are in Ashland County, two in Hocking County, and one in Knox County. The 47-mile line will extend from Benton Township in Hocking County to Columbus.

New York State Natural Gas Co. has asked to acquire and to construct facilities necessary to utilize the South Bend storage area in Armstrong and Indiana Counties, Pa.

The South Bend pool is expected to have a storage capacity of 13 billion cu. ft. of gas, with deliverability of 100 million cu. ft. or more per day. This additional gas would be delivered to The Peoples Natural Gas Co., Pittsburgh, and The East Ohio Gas Co., Cleveland, affiliates of New York State Natural in the Consolidated Natural Gas Co. system.

New York State Natural also plans to build a total of about 17 miles of field lines and a 12,000 hp compressor station in the storage area.

Total estimated capital cost of the project is $8,969,100.

Texas Gas Transmission Corp. has announced that it is embarking on a $939,000 underground gas storage program to meet the constantly expanding demands for natural gas in its mid-western service area.

The company has asked the Federal Power Commission to authorize the development of the Alford underground storage field near Petersburg, Indiana, which would enable Texas Gas to supplement its peak deliveries of natural gas by 30 million cu. ft. a day.

When completed, the Alford storage field will hold four billion cu. ft. of gas. Texas Gas now operates a storage field at Oaktown, Indiana, capable of delivering six million cu. ft. a day. Additional storage plans, the company said, will be announced in the future.

The company reported that no long term borrowing will be necessary to finance the facilities.

To develop and utilize the Alford field, Texas Gas said, it will be necesasry to:

1. Construct 12 miles of lateral pipe line from company's pipe line system in Indiana to the Alford field.
2. Construct 4.5 miles of storage field lines.
3. Construct a measuring station to record the amounts of gas delivered and withdrawn from the Alford field.
4. Construct a 1200 horsepower compressor station to pump gas into or out of the field.

The company said it would store gas during summer months for use during cold weather periods. In addition, Texas Gas noted, storage of gas during the summer will allow the company's present lines and supply points to be operated at higher load factors throughout the year, and will permit greater flexibility of pipe line operations to meet peak demands.

Work on the Alford storage project can begin about March 1, the company said, so that necessary construction work

(Continued on page 43)

American Gas Fundamentals

OUTLINE

Natural Gas
1. Geology
2. Drilling and Production

Manufactured Gases
1. Coke oven gas; producer gas, blue gas; carbureted water gas
2. Hi-Btu oil gas
3. Reformed gases

Transmission
1. Pipe lines
2. Corrosion and pipe protection
3. Compressor stations
4. Super compressibility
5. Hydrates and dehydration
6. Gas conditioning
7. Flow formulae
8. Orifice meter measurement

Gas Storage

Gas Distribution
1. System design and operation
2. Pressure regulation
3. Measurement and accounting

Gas Utilization
1. Combustion characteristics
2. Domestic
3. Commercial and industrial
4. Interchangeability

Conversion Practices

Management Problems and Policies
1. Corporate structure
2. Public utility regulation
3. Public relations

How to Use the Material

American Gas Fundamentals *is not intended as a training or service manual. It is a comprehensive compilation of basic gas facts to guide any gas utility employee toward a broader understanding of the industry as a whole. It is written in layman's language so that the technical fundamentals of every subject treated may be digested and understood by the non-technical reader.*

The series is designed to be removed from each current issue of American Gas Journal *and filed in a ring binder where it may be accumulated into a text book of permanent usefulness. Since the series will not run in sequence as outlined, material should be filed under the major subject head appearing in the upper right hand box at the head of each chapter.*

New subscribers to American Gas Journal *will be supplied free, upon request, with reprints of all previous chapters. Younger employees who may be required to serve in the armed forces will have put aside for them a full set of all texts that may be printed during their absence.*

AMERICAN Gas FUNDAMENTALS

NATURAL GAS
DRILLING AND COMPLETION

A CONTINUING EDUCATIONAL AND REFRESHER COURSE IN GAS TECHNIQUES, OPERATIONS AND MANAGEMENT

Methods of Drilling for Gas or Oil

IN the earlier days of the natural gas industry it was up to the natural gas companies to go out and find their own gas if they were to continue in business. That was before the days of the long distance pipe lines, and natural gas was served only to the communities and industries located very near to the gas producing fields.

Natural gas started its spectacular career first as an underground nuisance encountered in the search for oil. There was no market for the gas and the commonest way to get rid of it was to let it blow off into the air. But as it continued to be found in increasing quantities, it started to pay to build pipe lines to carry it to market.

Since this all started in the east, in what is known as the Appalachian area, we find in this section of the country many large natural gas systems that are in effect combinations of producing, transporting and marketing companies.

The Search for Oil

In the middlewest and southwest, however, and still later in California, natural gas was practically always discovered by men who were primarily in search of oil. When oil and gas are found together in a well, it is physically impossible to produce the oil without bringing the gas also to the surface. What to do with the gas was largely a matter of economics. If a market existed where the gas could be profitably sold, it found its way to that market. When no economical market was within reach of new producing fields, it was common practice to flare the gas, which simply meant to run a pipe up a short distance into the air and let the gas burn day and night where it did nobody any good at all. This practice is now almost extinct.

Today natural gas is recognized as the ideal fuel and as a result a vast and expanding market has been opened to all that can be produced. Cheaper and stronger steel pipe, electrically welded, has made long distance transportation to markets feasible. Now the conservation and regulatory authorities in the major producing states have passed laws and made rules that practically prohibit the wasting of natural gas.

So the cycle through which natural gas graduated from the nuisance class into that of a commodity that is much sought after has been repeated in every area in which it has been discovered. But it is still true that the great majority of the gas reserves of the country are owned by oil companies, or their subsidiaries, because originally the reserves were discovered in the search for oil.

Thus it can be seen that the prospecting, drilling and discovery of natural gas are closely related to the petroleum industry, even though there are now many gas companies that own leases, drill wells and carry on their own field production operations.

Regardless of who puts down the well, or who owns the gas that eventually flows from it, the business of drilling and production is carried on in the same manner by both gas and oil operators.

As we have seen in the chapter on Geology (January 1951, A.G.J.), that science has developed to the place where the prospect of either oil or gas can be predicted with a fair degree of probability. But oil and gas men know full well that the only way to learn whether oil and gas exist in the ground is to drill down and find out.

Drilling Methods

There are two methods of drilling a well, the cable tool method and the rotary method. The cable tool method is the older. It consists essentially in picking up and dropping a heavy cutting tool called a bit, which pulverizes the rock a little at a time and literally punches its way into the depths of the earth. Water is always kept in the hole to keep the cuttings in solution and from time to time the hole must be bailed out to make drilling easier.

Cable tool, or standard drilling as it is often called, is the cheaper form of drilling, when time is not an important factor, and where the distances down to producing sands are less than 5,000 feet. Beyond that depth it is very slow. An undesirable feature of cable drilling is that where water beds are encountered, the water fills the hole and cuts down the drilling rate. This water often has to be shut out by running a string of lining pipe, called casing, down inside the well, which reduces the hole diameter. If several water bearing beds are encountered, the number of strings of casing may become prohibitive, since each new string must be small enough in diameter to pass through the one immediately above it.

About 1900 rotary drilling was invented. This method drills with a rotating motion of a drill bit, which roughly resembles an auger, being twisted at the end of a drill pipe. The drill pipe is made up joint by joint at the surface as depth increases. Down through the pipe is forced a constant stream of mud which picks up the cuttings made by the drill and washes them up, between the drill pipe and the walls of the well, to the surface. The mud, being heavier than water alone develops a pressure that holds back any water encountered. It also tends to support the walls of the hole by forming a water impervious barrier, which is known as a "wall cake."

Power for drilling can be obtained from various sources. Originally only steam engines were used, with wood, coal or gas as the fuel, depending on which was the most readily available. Now gas engines, or diesels are

frequently used, either directly connected to the drilling equipment, or in some instances to generators to furnish electricity for motor drive.

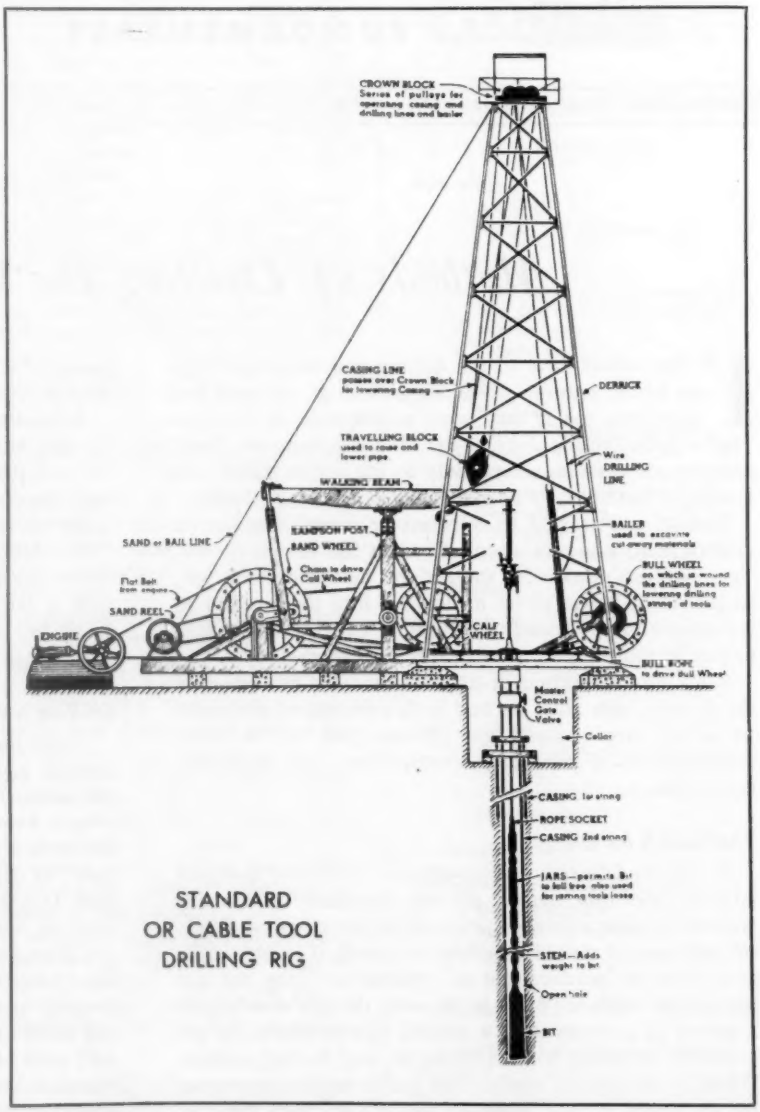
Equipment

Every well, whether drilled by the standard or rotary method, has a derrick which is the conventional support for the many pieces of equipment that must be lowered into the well. The standard or cable tool derrick is commonly from 64 to 87 feet high, the rotary one may be anywhere from 122 feet to 189 feet.

In standard drilling, the power from the engine is transmitted to the drill bit in the following manner: The engine drives a belt which is connected to a large wheel called the band wheel. This has a crank-like arrangement on the side which moves a vertical rod called a pitman up and down. The pitman is connected to one end of a walking beam, supported and hinged on the top of a sampson post. The other end of the walking beam is directly over the hole, and from it is suspended the string, consisting of a hard steel bit at the bottom, screwed into and supported by the drill stem which is attached to the walking beam by a long cable. As the walking beam moves up and down in a see-saw motion it raises and drops the cable, stem and bit, and the heavy bit breaks the rock at the bottom of the hole.

The particles of broken rock are removed at frequent intervals by a bailer. The bailer is a simple tube with a foot valve at the bottom which opens when it rests on the solid rock, and closes when the bailer begins to move up. The bailer is raised and lowered in the hole by means of a cable that passes over one of the pulleys in the crown block, at the top of the derrick and is wound and unwound on a small sand reel driven from the same band wheel that moves the walking beam.

There may be one or two additional pulleys in the crown block. These are used to raise and lower the drilling lines, and also to lift the casing up to the point where it can be inserted in the hole. The drilling industry abounds in specialized and sometimes highly picturesque terms describing the various tools and pieces of equipment that are used in field operations. Reference to the two accompanying illustrations will show the names and functions of some of these. However, for an understanding of the simple fundamentals involved in drilling and completion, it is not necessary for the student to concern himself with all of the nomenclature of the industry.


CROWN BLOCK
Series of pulleys for operating casing and drilling lines and bailer
CASING LINE passes over Crown Block for lowering Casing
DERRICK
TRAVELLING BLOCK used to raise and lower pipe
Wire DRILLING LINE
WALKING BEAM
SAMPSON POST
BAILER used to excavate cut-away materials
SAND or BAIL LINE
BAND WHEEL
Chain to drive Cull Wheel
BULL WHEEL on which is wound the drilling lines for lowering drilling string of tools
Flat Belt from engine
SAND REEL
ENGINE
CULL WHEEL
BULL ROPE to drive Bull Wheel
Master Control Gate Valve
Collar
CASING 1st string
ROPE SOCKET
CASING 2nd string
JARS—permits Bit to fall free also used for jarring tools loose
STEM—Adds weight to bit
Open hole
BIT

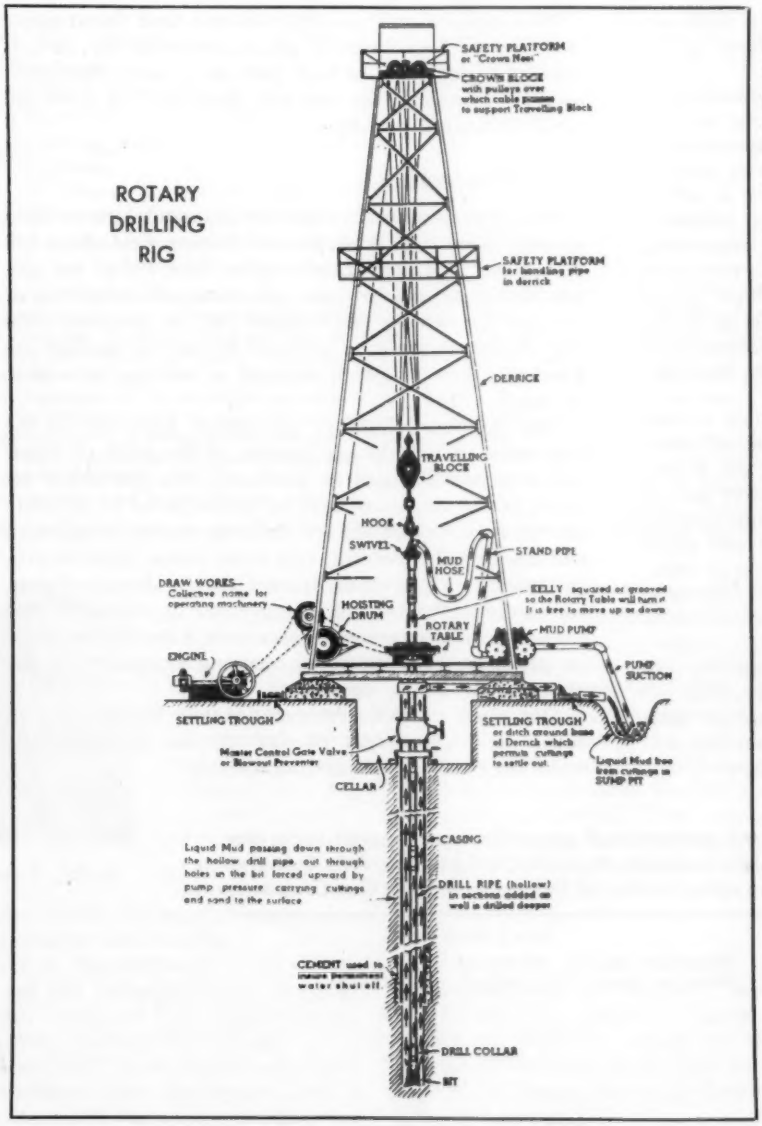
STANDARD
OR CABLE TOOL
DRILLING RIG

Drilling Operation

Casing of the hole is done by lining it with pipe large enough for the drilling tools to pass through. Casing shuts off water and prevents the hole from caving. In standard or cable tool drilling, it is often necessary to set strings of casing at various depths where water is encountered. Usually a string of casing from 20 to 600 feet or more is set at the top of the well to prevent caving, and this is called the surface casing. Surface casing is used in both standard and rotary drilling operations.

The rotary method of drilling utilizes the rotary motion of a drill bit to cut through the rock formations. This bit is not operated by a cable. Since it is necessary to impart a turning motion, this requires a solid connection from the bit itself to the rotary table at the top of the hole. The bit is therefore attached to a drill collar, and thence to a drill pipe which is made up of sections so that it can be added to joint by joint as the bit cuts into the ground. On the top of the round drill pipe there is one joint of square pipe called the Kelly, which fits through a square hole in the revolving rotary table, and turns the drill pipe. The table lies flat and parallel to the drilling floor. It is turned by any type of motive power available, usually a gas, gasoline or diesel engine.

The drill pipe is open all the way down to the bit, the bit is perforated, and mud is kept flowing in a constant stream down through the pipe and out the holes in the bit. This mud picks up the loose cuttings and they are all washed up between the pipe and the walls of the hole to the surface.



The weight of this great column of mud is usually sufficient to hold back water, oil and gas in all sands drilled, thus eliminating the necessity for the successive strings of casing which are so often required in cable tool drilling.

In the chapter of Geology it was pointed out that well logs are kept for the purpose of getting an accurate record of the underground formations that the drills pass through. The well log is compiled from careful examination of the cuttings brought up in the bailer, or washed up in the mud flow, depending on the type of drilling operation that is in use. In either case a record is kept of the location and thickness of water sands, gas sands, oil sands and of the nature, character and thickness of the beds penetrated in reaching them.

When the oil or gas bearing sandstone or limestone is penetrated by the drill, a string of casing is run down to the sand and then cemented in place. The cementing operation is accomplished by pumping liquid cement under pressure down to the bottom of the pipe, from where it spreads out and is forced up between the pipe and the rock formations. After it hardens, it is necessary to drill through the plug of cement that has set, in and immediately below the bottom of the casing. This string of pipe is often termed the production string. Casing is either cemented on top of the producing zone or below it, in which latter event it must be perforated to allow the gas or oil to enter the pipe.

When a well is completed having sufficient volume and pressure to flow naturally, a string of tubing (2" or 2¼") is usually run down to the bottom of the well on the inside of the production string of casing and production is taken through this string of tubing. This has the effect of bringing to the surface with the gas, fluids that may come from the producing horizon, and that would not reach the top of the hole through the larger diameter casing. The tubing may be either open at the bottom or perforated in its lower portion, whichever best admits gas from the producing area involved.

Production

When the casing and tubing are in place, the well is ready for production. Since it is necessary to control the flow, gate valves of sufficient size and weight to handle the volume and pressure of the well are installed above ground and connected to the tubing in the well. There is always a top gate valve, opening to the atmosphere which may be used to blow water and dirt from the well, and for periodic pressure observations. Another gate valve opening from the side of the pipe controls the flow of gas into the gathering lines, which in turn lead to the main transmission lines.

Most gas wells produce various amounts of fluids in the form of water and natural gasoline. It is necessary to remove all fluids and possible condensation at or near the well before the gas enters the transmission system.

Of course, where natural gasoline is present in commercial quantities, its value dictates that it should be removed and accumulated for the market.

One of the most common methods of removing liquids from wells is with the syphon system and one or more line drips. The drip in its simplest form is merely an expansion chamber which allows the gas to expand, drop its load of accumulated vapors and proceed on into the gathering system. The drip acts as a settling tank, the gas passes off into the line and the water that accumulates is periodically drained or blown by gas pressure out of the tank.

Liquid Removal

Often a syphon system is used in connection with the drips. Here a pipe, from as small as ¾ to 2 inches in diameter, is run down inside the tubing to the bottom of the hole. Near the bottom the syphon line is perforated to allow liquid and gas to enter the pipe. Small holes are bored in the string above the water line. The gas jets in through these small openings, expands and produces a

force that is sufficient to drive the bottom hole fluids up the line to the surface where they can be blown to the air or collected in the drips as described.

The foregoing discussion of drilling and production of natural gas is obviously written with the special interest of gas utility employees as the paramount consideration. It should be noted, however, that as important as natural gas has become in the national fuel economy, it is still in most instances closely allied to the petroleum industry. It is true that in certain areas an active and continuing search for new gas fields is under way. But even there it is because companies, that once marketed their gas as sort of a by-product of the oil industry, have in recent years come under the necessity of finding additional gas supplies to take care of the markets that have been developed.

The old practice of flaring natural gas, which at one time assumed the proportions of many millions of cubic feet per day, is no longer followed. Where oil is encountered in a structure, there is nearly always gas in solution in the oil. As the pressure on the underground sands is reduced, through the medium of the well itself opening it to the atmosphere, the gas comes out of solution, driving the oil before it, towards the well. Frequently the pressure is strong enough to lift the oil to the surface, and at high pressures. Oil men may have felt, understandably enough, that once the gas had driven the oil they wanted to the surface, it had done its job. The oil was captured and the gas was allowed to flare off into the air just as the exhaust gases from an automobile are allowed to dissipate in the surrounding atmosphere.

Now most of this gas that was one time flared either finds its way into a natural gas transmission line, or it is injected under pressure back into the ground where it is used to re-establish the reservoir pressures and drive still more oil toward the wells.

Liquid Hydrocarbons

Even the gas from the relatively dry natural gas fields in sections of Texas, Oklahoma and Kansas yield about 1/3 of a gallon of natural gasoline plus from 1/3 to one gallon of butane and propane per thousand cubic feet of raw gas. To recover this valuable fuel the primitive little drip described earlier is replaced by natural gasoline extraction plants in which millions of dollars have been invested.

The petroleum industry as such is interested in the processing of natural gas because of the yield of liquid hydrocarbons that can be produced. The gas utility industry is also concerned that the gas delivered for ultimate sale to its customers be of uniform quality, a standard and constant Btu content, free from excess liquid hydrocarbons and water vapor. It must also be devoid of dust, corrosives and other foreign materials or chemicals that would either interrupt service or have a destructive effect on gas lines, regulating and metering equipment or the ultimate consumers' appliances.

This phase of industry operation will be discussed in detail in a subsequent chapter of *Gas Fundamentals* under the heading of "Gas Conditioning."

This chapter on drilling and completion of gas wells was prepared under the supervision of C. U. Daniels, President, Royalite Oil Company, Ltd., Calgary, Canada; former operating vice-president of Oklahoma Natural Gas Company.

Illustrations are by courtesy of Oklahoma Natural Gas Company.

Drilling Terms

Bit

The heavy cutting tool used in either cable tool or rotary drilling. The cable tool bit is solid and has a blunt cutting edge. The rotary bit vaguely resembles an auger and is hollow with perforations through which mud is forced, to wash the cuttings to the surface. In unusually hard formations a bit with rolling teeth may be substituted.

Derrick

An open framework, tapering tower, most commonly of steel construction, used as a support for raising and lowering the equipment into the well.

Drill pipe

In rotary drilling, the heavy pipe which connects the bit to the rotary table. It is hollow, so that mud may be forced down and out through the bit. It is made up joint by joint as depth increases.

Jars

Two large links, like a chain, connecting the stem, in cable tool drilling, to the cable. Their purpose is to produce a jar when the drill is jerked upward, thus loosening the tools if they become stuck in the hole.

Kelly joint

In rotary drilling a square joint of pipe which works through the rotary table and turns the drill pipe.

Stem

A long heavy steel bar into which the cable tool bit is screwed, to add weight and force to the impact as the bit is dropped.

Temper screw

In cable tool drilling, a screw five to seven feet long by which the drilling cable is attached to the walking beam. By turning the temper screw the tools can be lowered inch by inch as drilling progresses.

Index of Yields : Selected Utilities Stocks

	Feb. 1951	Jan. 1951	Dec. 1950	Nov. 1950	Oct. 1950	Sept. 1950	Aug. 1950	July 1950	June 1950	May 1950	Apr. 1950	Mar. 1950
Natural Gas Transmission Companies	5.31%	5.36%	5.97%	5.62%	5.19%	5.71%	5.46%	5.76%	4.86%	4.70%	4.77%	4.57%
Natural Gas Transmission & Distribution Companies	5.31	5.47	5.67	5.46	5.40	5.61	5.71	5.79	5.29	5.11	5.14	5.19
Manufacture & Mixed Gas Companies	5.21	5.22	5.56	5.46	5.24	5.52	5.55	5.76	4.98	4.66	4.77	4.71
Class "A" Electric Companies	5.65	5.62	6.19	6.03	5.56	5.67	5.59	5.64	4.94	5.13	5.24	5.15
Class "B" Electric Companies	5.78	5.80	6.38	6.06	5.99	6.06	6.35	6.41	5.58	5.30	5.37	5.42

Method of Compiling Index of Yields

This is a straight arithmetical index of comparative yields obtainable on a selected group of gas and electric utility industry common stocks.

The companies comprising this index have been selected by the AMERICAN GAS JOURNAL as providing a representative cross-section of each industry, from the standpoint of geographical diversification and of the relative importance of the individual companies in their areas.

No effort has been made to weight the average to give effect to changes in capitalization or in dividend rates because the yields afforded on the issues reflect such changes. The index is designed to show the rate of return and not necessarily market movements on the stocks comprising it.

The companies used in compiling this index are:

Natural Gas Transmission Companies: El Paso Natural Gas Co.; Northern Natural Gas Co.; Panhandle Eastern Pipe Line Co.; Southern Natural Gas Co.; Tennessee Gas Transmission Co.

Natural Gas Transmission and Distribution Companies: Columbia Gas System, Inc.; Consolidated Natural Gas Co.; Lone Star Gas Co.; Oklahoma Natural Gas Co.; Pacific Lighting Corp.

Manufactured and Mixed Gas Companies: Bridgeport Gas Light Co.; Brooklyn Union Gas Co.; United Gas Improvement Co.; Peoples Gas Light & Coke Co.

Class "A" Electric Companies: Boston Edison Co.; Commonwealth Edison Co.; Houston Lighting & Power Co.; Southern California Edison Co., Ltd.

Class "B" Electric Companies: Dayton Power & Light Co.; Hartford Electric Light Co.; Pennsylvania Power & Light Co.; Public Service Co. of Colorado; San Diego Gas & Electric Co.

John F. Falvey

SO far as utility stocks are concerned the stock market during the past month has been a standoff. Most of the groups comprising the AMERICAN GAS JOURNAL index showed improvement, it is true, but the change has been so slight as to be practically unnoticeable.

Even in the previously more vibrant railroad and industrial shares the pace recently has been of a faltering type, with daily losses on the increase.

"Selectivity" is the market observers' description of this development, and it may be said to have two principal root causes. In the advance of leading stocks over the past few months investors have attained one goal—an offset to the inflationary trend and to the consequent loss in purchasing power of the dollar.

Equally as important—investors are fully as confused as business management over the befuddlement of Washington and the resultant drifting of the national economy.

In the race to translate dollars into tangible goods, industry and individuals alike have built up inventories to tremendous size. What is more, Washington and the military have done likewise.

Inventories have grown to such an extent as to become unwieldy in the event of "peace feelers" from Moscow. What the outcome may be is anyone's guess, but no early change in the trend seems to be in prospect.

In the interim, and barring the unforeseen, corporate earnings and dividend payments are expected to remain at a high level.

Sources close to the nation's banking picture incline to the belief that the 1951 total of industrial production may hit $280 billion.

This would be sufficient, in their opinion, to permit payment of the $70 billion annual total of Federal taxes proposed by the Washington Administration without causing any great unsettlement to the nation's economy.

Dividends Level

Pursuing the subject further, they reason, domestic corporations should be able in 1951—despite a higher tax burden—to continue paying the same amount of dividends as in 1950 and to set aside the same amount for construction expenditures.

Corporate net profits in 1950 probably amounted to about $20 billion, according to qualified observers, and dividend payments totaled approximately $9 billion, or 45 per cent of profits available for the purpose.

This meant that industry was able to retain $11 billion with which to finance construction, plus about $2 billion in the form of depreciation reserve accruals.

Taxes paid by corporations—including excess profits taxes—hit an all-time record of about $18 billion in 1950, and the figure might reach to somewhere between $25 and $30 billion in the event the Washington administration gets the full $70 billion of taxes which it is currently asking.

The new levies proposed by the administration might have the effect, in the opinion of Secretary of the Treasury Snyder, of paring corporate profits in 1951 to around $17 billion—a drop of 22 per cent from the 1950 level.

A recent development which has been described in some investment quarters as a potential boon to common stock values is the move now under way to obtain legislative sanction in New York State for life insurance companies to invest a maximum of three per cent of their assets in common stocks.

The proposal is far removed from receiving legislative approval. Furthermore, it does not have the unqualified endorsement of all the leaders in the life insurance field, and the probable impact of such a step on the stock market economy probably would be far less efficacious than recent glowing press reports would indicate.

The maximum potential of life insurance companies in New York State is in the neighborhood of $55 billion. Three per cent of this would mean maximum possible common stock investment of $1,650 million.

Life insurance companies in the state already have made substantial investment in common stocks. At last report (as of the 1949 year-end) the figure stood at $414 million. This presumably was increased during 1950.

On this basis a maximum of $1,100 million further could be so invested. Two of the leading life companies, however, just aren't interested in common stocks. They wouldn't buy them. This leaves only a $600 million potential investment from this source, and even this amount of buying couldn't be expected to materialize at today's extremely high level of common stock prices.

This information from life insurance

(Continued on page 48)

CITIES SERVICE PLANS TO GROW

S. B. Irelan

THE Cities Service Gas Co. plans a large construction program for 1951 in order to provide additional capacity to meet the increased demands of its customers for natural gas in the territory served by its pipe lines. S. B. Irelan, President, has announced that the company has adopted a 13½ million dollar general system construction program that it hopes can be completed by December 31, 1951.

He said that the company will build over 700 miles of gathering lines in the Hugoton, Kansas, natural gas field; will add three more compressors totaling 4,800 horsepower to its Ulysses, Kansas, compressor station; will build a new intermediate compressor station with four compressor units totaling 6,400 horsepower near Greensburg, Kansas, on its 26-inch line to Kansas City; will build two new compressor stations on the Springfield, Missouri, line, one near Welch, Oklahoma, of 1200 horsepower and one near Pierce City, Missouri, of 680 horsepower.

Mr. Irelan said the company was acquiring the necessary leases and making contracts to acquire additional gas storage capacity capable of storing about 20 billion cu. ft. of gas in two fields that are near Topeka, Kansas, and Colony, Kansas. The addition of these two fields, when fully developed, will add 120 million cu. ft. of gas per day to the delivery capacity of the system of the Cities Service Gas Co. This is enough to provide for 60,000 additional house heating units. The company has purchased most of the pipe required to connect 650 new gas wells in the Hugoton, Kansas, natural gas field. All of these projects, Mr. Irelan said, would eventually increase the daily delivery capacity of the system of Cities Service Gas Co. by about 180 million cu. ft. per day. Application for certificates of convenience and necessity were filed with the Federal Power Commission in January for these additions.

Mr. Irelan said that the comparative cheapness of natural gas to other fuels, coupled with its being the most refined and conveniently useable fuel on the market, has created an unusual and unprecedented demand for its use for house heating, water heating, cooking purposes, and for the heating of hundreds of commercial establishments.

All restrictions as to the use of natural gas for domestic and commercial purposes were removed during 1950 by the Kansas and Missouri commissions. During World War 2 the use of natural gas was restricted to new homes and prohibited to commercial establishments and conversions in old homes because of the scarcity of pipe and other materials necessary to enlarge the system. Since the lifting of restrictions, some 60,000 houses have been converted to natural gas during 1950 on the distributing systems served by Cities Service Gas Co.

This has resulted in an increased demand on the company's system of around 120 million cu. ft. of gas per day. In addition, the distributors of the company's gas estimate that an additional demand of 60 million cu. ft. per day has been created by the conversion of commercial establishments to natural gas. The new homes and conversions of old homes to natural gas, plus its adoption by commercial establishments, has resulted in an increased demand on the company's system of around 180 million cu. ft. of gas per day over and above what it was last year.

The load on the company's system on December 6, 1950, when temperatures in the market area served by the company went down to six degrees below zero, was around 920 million cu. ft., with about 450 million cu. ft. of industrial demand shut off. The amount of gas which the domestic and commercial customers demanded on that day was fifteen times what they demand on the Fourth of July, and was about 150 million cu. ft. more per day than the biggest previous day in the company's history. It is now estimated by the distributing companies being served by Cities Service Gas Co. that 20,000 new and converted house heating customers will be added to their lines during 1951, and that the commercial heating load demand will again increase by about 60 million cu. ft. per day, both of which will give a total increased demand on the company's system on a cold day of around 100 million cu. ft. To meet this large increase in demands, Mr. Irelan said, the company has to plan its construction program years in advance. Hundreds of gas wells have to be drilled and connected on proved gas acreage.

During 1950, Cities Service Gas Co. made a new contract with Stanolind Oil & Gas Co., of Tulsa, to purchase the gas from over 400,000 acres of gas lands in the Hugoton, Kansas, natural gas field. Geologists estimate that there are over 1¼ trillion cu. ft. of natural gas underlying these 400,000 acres of land. To make this gas available to the system of Cities Service Gas Co., the Stanolind Oil & Gas Co. will have to drill and equip over 500 new gas wells at a cost of around twenty million dollars.

NATURAL GAS RESERVES GAIN

Proved recoverable natural gas reserves on December 31, 1950 were 185.6 trillion cu. ft., an increase of 5.2 trillion cu. ft. over estimated reserves of 180.4 trillion cu. ft. a year earlier, according to estimates in a joint report of the Committee on Reserves of the American Gas Association and the American Petroleum Institute. These reserves are the highest on record and the gain over a year ago was registered over a record production of 6.89 trillion cu. ft. of natural gas during 1950. In 1949 production of natural gas was 6.24 trillion cu. ft.

The AGA committee estimated proved recoverable reserves of natural gas liquids also attained a new record of 4.27 billion barrels as of the end of 1950. This compares with 3.73 billion barrels on December 31, 1949, and the increase was made despite record production of 227 million barrels of natural gas liquids last year. Crude oil reserves on December 31, 1950 were estimated at 25.26 billion barrels compared with 24.65 billion barrels at the end of 1949. The total estimated liquid hydrocarbon reserves on December 31, 1950 were 29.54 billion barrels compared with 28.38 billion barrels a year earlier.

Discoveries of new natural gas fields and new pools in old fields accounted for an increase of 2.9 trillion cu. ft. last year, while extensions and revisions of previous natural gas estimates in existing fields accounted for 9.2 trillion cu. ft. Estimated reserves of natural gas in underground storage at the end of 1950 were 54.3 billion cu. ft. greater than on December 31, 1949.

The increased production of natural gas was largely attributable to the opening of several new pipe lines during the year and to the increased capacity of several existing systems. In addition the impact of the defense effort has brought with it heightened industrial demands for natural gas.

The division of natural gas reserves and production is set forth in the following:

Reserves (Thousands of cu. ft.)	
Dec. 31, 1949	180,381,344,000
Dec. 31, 1950	185,592,699,000
Increase	5,211,355,000
Production (Thousands of cu. ft.)	
Dec. 31, 1949	6,245,041,000
Dec. 31, 1950	6,892,678,000
Increase	647,637,000

The production figures for 1950 are net after deducting the amount of gas returned to reservoirs for cycling and pressure maintenance.

WELL GROUNDED

Ground clamps for the protection of property and gas line workers from electrical dangers have been devised by Walter M. Marshall, shop foreman, Manufacturers Light and Heat Co., Washington, Pa.

Two clamps, 21 inches high and 11 inches wide, were made of flat steel and were connected by 10 feet of waterproof wire cable.

The clamps were made for pipe from two to ten inches in diameter, but by enlarging the pattern, they could be made for any diameter and any size of line opening, meter, or regulator space.

In the illustration (courtesy of News and Views) Mr. Marshall is on the left, and District Manager Forbes W. Burdette, of district 5, Pittsburgh Group, Columbia Gas System, is at the right.

Ebasco and NYU Have Safety Seminar

Utility men attending the fourth annual seminar in public utility safety, conducted jointly by Ebasco Services, Inc. and New York University, were unanimous in their agreement that the mutual exchange of ideas under the guidance of Ebasco and University personnel has given representatives new methods and tools with which to attack the safety problem in their organizations.

Originally a course for safety directors, the seminar just concluded in New York (March 2) actually was a training course for supervisory and executive personnel, W. T. Rogers, safety consultant of Ebasco Services, said. This is exactly as it should be, Mr. Rogers pointed out, "since safety is definitely the responsibility of the operating line organization."

When the seminars were inaugurated a few years ago, Mr. Rogers said, almost the entire class consisted of safety directors. The series was set up to train newly appointed safety directors and to acquaint other safety directors with new scientific developments and latest field practices. In attendance at the most recent seminar were eight safety men and twelve operating men—chief engineers, division managers, and division superintendents.

"Responsibility for safety," the representatives were told, "is threefold. It rests on management, on supervisors and on employees. The management of the company is primarily responsible for safety. It is responsible to the public, to its employees and to its stockholders for setting up and maintaining a successful safety program. In many instances it also is responsible to regulatory authorities for the operation of its safety program."

Pointing out that safety has an economic value as well as a human value, Mr. Rogers said that accidents cost the people of the United States some $7,100,000,000 per year. He disclosed that a survey was recently made of a group of 15 gas, electric and combination gas and electric companies for the purpose of determining their accident costs and the cost of safety work. These companies represented over 76,000 employees with a total annual payroll of $237,000,000. Actual figures show an annual compensation cost exclusive of insurance premiums of $592,294, a medical cost of $254,000, and direct payments of $244,000 for a total out-of-pocket accident cost of $1,090,963 which amounted to approximately $0.46 per $100 of payroll. On a case basis this figure amounted to about $430 per lost time accident case.

The men were told that "in order to get both executives and employees behind a safety program, the top executive must be convinced of the need for such a program and he alone must convince his subordinates. Such convictions will come to him only after he fully understands what his accident losses really are, how they affect efficiency and what safety means in terms of production and sound employee relations.

"Two of the best possible evidences of the top executive's sincerity are, of course, his willingness to assign responsibility to good men and to give them the authority to carry it out and a willingness to spend money to make needed improvements to plant and equipment. The 'grapevine' quickly reaches every employee in the plant with the word that only lip service is required or, on the contrary, that accidents must be stopped and accident causes found and eliminated."

About half of the time of the seminar was spent in the classes at the Center for Safety Education, New York University, and the remainder was devoted to field trips, instructional work, and conferences at Ebasco Services.

Since a considerable part of the effectiveness of safety and operating personnel lies in their ability to speak clearly and convincingly, a great deal of time was spent on public speaking.

Field trips were arranged to the Long Island Lighting Co., where that company's training school was inspected; to Consolidated Edison Co., where the safety program was reviewed; and to C-O-Two Fire Equipment Co., where the men saw the latest fire fighting equipment and were given a demonstration of modern fire fighting methods.

Through the cooperation of the First Army Headquarters at Fort Jay on Governors Island, the men were allowed to visit the island and review the Army's driver training program. They saw practical demonstrations of how the First Army Headquarters has cut down the automotive accident rate from 14 accidents per 100,000 miles traveled to two per 100,000 miles. The program was explained by Col. R. W. Chutter, safety officer, First Army, Capt. Wendell Stuart and H. M. Ferguson of the First Army Safety Department.

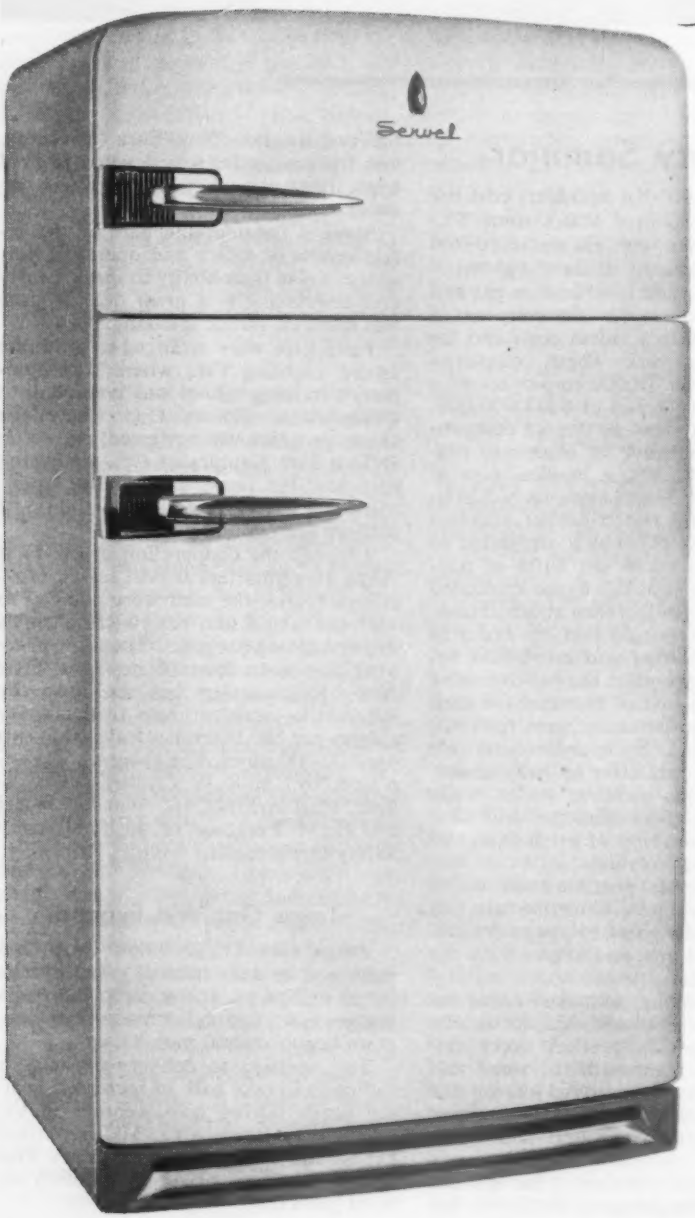
Texas Gas Will Expand

Texas Gas Transmission Corp. has increased its daily natural gas deliveries by 60 million cu. ft. by completion of a compressor station construction program begun several months ago.

The addition to delivery capacity is sufficient to take care of increased heating needs during cold weather in the company's service area, Mr. Stevenson explained. The 2400-mile Texas Gas system now serves over 700 million cu. ft. of gas a day.

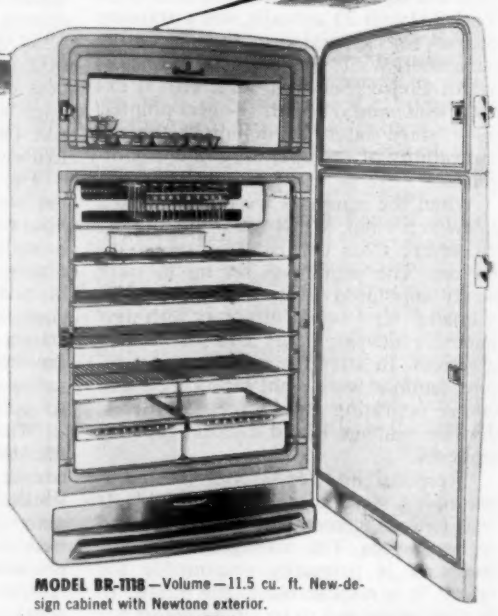
Servel

Eight Great



SERVEL *Royal* SERIES

These three great models are the aristocrats of the new Servel line. They're much bigger inside, yet need no more space outside. And from the spacious eleven and a half cubic foot size to the big-value eight, they include every feature of convenience and appearance to help you outdistance all competition.

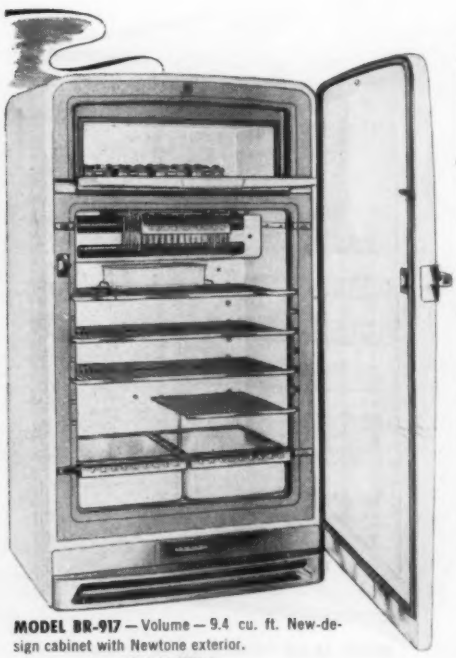


MODEL BR-1118—Volume—11.5 cu. ft. New-design cabinet with Newtone exterior.
height 65⅞ in.
width 34⅛ in.
depth 31⅛ in.
2 glass-covered Dew-Action Vegetable Fresheners.
5 "Quick-Release" Ice-Cube Trays.
Full-width evaporator with exterior door

announces

Models for '51

They're marvelous...they're motorless... they're modern through and through!



MODEL BR-917—Volume—9.4 cu. ft. New-design cabinet with Newtone exterior.
height 60⅝ in.
width 32⅜ in.
depth 31 in.
2 glass-covered Dew-Action Vegetable Fresheners.
4 "Quick-Release" Ice-Cube Trays.
Full-width evaporator.

MODEL BR-816—Volume—8 cu. ft. New-design cabinet with Newtone exterior.
height 58 in.
width 30⅛ in.
depth 29⅝ in.
2 glass-covered Dew-Action Vegetable Fresheners.
4 "Quick-Release" Ice-Cube Trays.
Full-width evaporator.

Now . . . the most exciting refrigeration news in years . . . the great, *entirely new* Servel Silver Anniversary line. Roomier inside, smaller outside, it's here in eight beautiful models to let you sell a size for any size family . . . any size kitchen!

Actually three great lines in one! You'll go overboard for the luxurious Royal line . . . unequalled in spaciousness, beauty and superconvenience. The value-packed Deluxe series, and the Economy line . . . with a price appeal you'll find tempting customers to your doorstep.

Each new Servel has all the improvements we could think of . . . every feature *you* asked for. Yes, the 1951 Silver Anniversary Servel, inside and out, is years ahead of the rest!

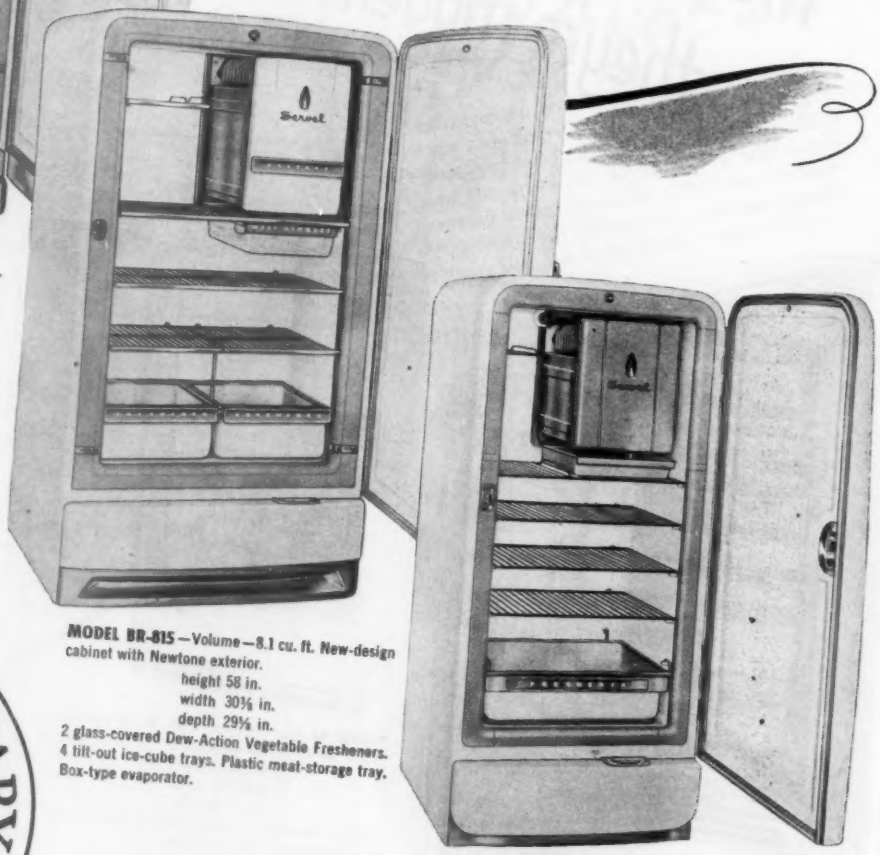
Turn the page to see more of the entirely new Servels . . . the Deluxe and Economy series . . . five sales-boosting headliners for 1951.

marvelous...motorless...

SERVEL *Deluxe* SERIES

Customer appeal is packed into this new intermediate-priced line of Servels. With the roomier interior and smaller outside dimensions that typify all the new models, their classically smart appearance will enhance any kitchen. And complete with Dew-Action Vegetable Fresheners, they have all the features customers want.

MODEL BR-1015—Volume—10.3 cu. ft. New-design cabinet with Newtone exterior.
height 60⅝ in.
width 32⅜ in.
depth 31 in.
2 glass-covered Dew-Action Vegetable Fresheners. 4 tilt-out ice-cube trays. Plastic meat-storage tray. Box-type evaporator.



MODEL BR-815—Volume—8.1 cu. ft. New-design cabinet with Newtone exterior.
height 58 in.
width 30⅛ in.
depth 29⅛ in.
2 glass-covered Dew-Action Vegetable Fresheners. 4 tilt-out ice-cube trays. Plastic meat-storage tray. Box-type evaporator.

MODEL BR-615—Volume—6.08 cu. ft. New-design cabinet with Newtone exterior.
height 55⅛ in.
width 24⅜ in.
depth 29½ in.
Full-width glass-covered Dew-Action Vegetable Fresheners. 3 tilt-out ice-cube trays. Porcelain meat-storage tray. Box-type evaporator.

modern through and through!

SERVEL *Economy* SERIES

Here's the biggest refrigeration value ever. Two new Servels that combine all the advantages of motorless operation . . . long life and silence . . . with a cost figure that will let you reach down to the lowest price level. Ideal for the huge apartment and multiple-dwelling market.

A COMPLETE CHANGE in engineering design has made all the new Silver Anniversary Servels bigger inside, smaller outside. So now there's about one-third more useful refrigeration space in the same floor area.

That's the ace you asked for to hit the big replacement market. And now you have it together with the same dynamic sales feature that has made Servel famous through the years—its marvelous, motorless, silent freezing system.

Get all the models . . . *show* all the models . . . and you'll *sell* all the models. For the new 1951 Servel is the world's finest refrigerator.

MODEL BR-613—Volume—6.08 cu. ft. Cabinet with Newtone exterior.
height 55⅛ in.
width 24⅛ in.
depth 29½ in.
Porcelain meat-storage tray. 2 tilt-out ice-cube trays. Box-type evaporator.

MODEL BR-813—Volume—8.1 cu. ft. New-design cabinet with Newtone exterior.
height 58 in.
width 30⅛ in.
depth 29⅛ in.
Glass-covered Dew-Action Vegetable Freshener. 4 tilt-out ice-cube trays. Plastic meat-storage tray. Box-type evaporator.

N. Y. Public Service Commission Approves Merger To Avoid Duplicate Regulation

Hon. B. F. Feinberg

ON the basis of avoiding combination federal and state regulation of utilities the Public Service Commission of New York on February 16 approved the merger of Westchester Lighting Co. and Yonkers Electric Light & Power Co. into Consolidated Edison Co. of New York. An opinion by Commissioner Francis T. Mylott setting forth the basis of the commission's decision in the matter showed that the unification will result in important benefits to Westchester utility consumers.

This merger establishes the largest privately managed gas and electric operating company in the world, with total assets of nearly $1,500,000,000 and serving more than 4,000,000 customers in metropolitan New York.

The Westchester and Yonkers companies were wholly owned subsidiaries of Consolidated Edison. Commissioner Mylott's opinion concludes that the unification is in the public interest, in that: the economies resulting will bring a saving of an estimated $750,000 a year in operating expenses, this saving to be passed on to customers; and because Consolidated Edison is now receiving natural gas from Transcontinental Pipe Line Corp. and plans to change over the service in Westchester County from manufactured to straight natural gas in 1952, the Federal Power Commission has claimed certain jurisdiction over the Consolidated Edison system. If the companies involved were to remain independent corporate entities, with Consolidated Edison reselling to Westchester part of the natural gas it receives from an interstate pipe line, there is the threat of federal intervention into the operations of the system companies. The fusion of the three utilities into a single operating company will make unnecessary the accounting phase involved in resale of natural gas by Consolidated Edison to another company and the possibility of federal intervention will be largely eliminated. The New York Commission has often decried what it characterized as "federal intrusion" into purely local operations of intrastate utilities and Commissioner Mylott's opinion, approved by Chairman Benjamin F. Feinberg and Commissioners Spencer B. Eddy and Glen R. Bedenkapp, states:

"This commission in 1945 refused to approve the merger of the companies now under consideration here. Since that time, however, there has been an outstanding change in the character of one class of service to be rendered—natural gas has been introduced into the Consolidated Edison system. If Consolidated Edison should sell and deliver any portion of that natural gas to its subsidiary under the existing doctrine laid down by the Federal Power Commission, the local distribution of such gas in Westchester County would be subject, in part, to the jurisdictional theories of that commission.

"Duplicate regulation of any public utility, irrespective of the desire of various commissions to serve the public interest, can result, and frequently does, in division of power and responsibility. Good regulation of public utilities requires that one body must assume the responsibility and, no matter how earnest various commissions may be in their desires to protect the public, divided responsibility frequently leads to tragic results. Hence, the situation has changed since 1945, and the powerful argument that favors this merger is the fact that it will aid in avoiding duplicate regulation, particularly in respect to activities which are located exclusively within the state of New York."

In the course of the hearings on the merger proposal executives of Consolidated Edison testified that it is the plan of the company to introduce uniform rates eventually throughout the territory served by the system. Also, the introduction of straight natural gas in the Westchester territory would in time bring about a readjustment of gas rates in Westchester to the level of the rates of Consolidated Edison in New York City. Commissioner Mylott's opinion states that the establishment of uniform electric rates throughout the territory of the merged companies is undoubtedly in the public interest but as to the gas rates of Westchester Lighting, the commission now has a proceeding on that subject and the matter will be decided without regard to the company's plan that may materialize a year or two hence. The opinion further says:

"The weighing of all factors and considerations now in the record with respect to the proposed changeover to natural gas in Westchester County, indicates that there is considerable merit in uniform rates (on a heat unit basis) for the entire Consolidated Edison territory, or at least as far as the more densely populated areas of Westchester County are concerned. However, with the proposed introduction of straight natural gas in Westchester County still over a year away, the rate question need not be passed upon finally in this proceeding.

"Whether the commission will ultimately decide that uniform rates in New York City and Westchester County should be established for either or both electric and gas service can not be stated at this time, and there is no necessity for any such decision in passing on the matter involved in the instant petition. Nevertheless, it should be pointed out that the adoption of uniform rates in these areas would not be inconsistent with findings made with respect to uniform rates in other sections of the state of New York.

"At a recent hearing relating to Westchester gas operations a commission witness testified that a review of the preliminary operating results for 1950 disclosed that a return of just under three per cent had been earned on a rate base developed along the same lines as was used in fixing the interim rates in 1948. While three per cent can hardly be considered a fair return, it is doubtful whether Consolidated's gas business in New York City has shown a much better result."

Westchester Officials Become V-P's of Consolidated Edison

Consolidated Edison Company of New York, Inc., has announced that the merger into itself of two of its subsidiaries, the Westchester Lighting Co. and The Yonkers Electric Light and Power Co., became effective immediately.

Consolidated Edison's policy of local administration for its Westchester County electric and gas operations will remain unchanged. Edward P. Prezzano and L. A. Scofield, who were President and vice-president, respectively, of the two Westchester utilities, have been elected vice-presidents of Consolidated Edison and will direct the company's Westchester division.

Electric and gas operations in Westchester County have been integrated with Consolidated Edison operations for a number of years.

Consolidated Edison's program of corporate simplification has now reduced the number of its system companies from 18 in 1930 to four at present. The three remaining subsidiaries are the New York Steam Corp., Staten Island Edison Corp. and Consolidated Telegraph and Electrical Subway Co.

Mr. Prezzano began his utility career

Edward P. Prezzano

Louis A. Scofield

back in 1902 as a clerk for the Standard Gas Light Co. Two years later he joined Consolidated Gas Co. and by 1922 had advanced to assistant general commercial manager. He joined Westchester Lighting as secretary in 1924 and later was elected vice-president of Yonkers Electric Light and Power and a vice-president of Bronx Gas and Electric. He became President of Westchester Lighting and of the Yonkers company in 1936, later becoming a director of both companies as well as a trustee of Con Edison.

Mr. Scofield joined New York Edison as an assistant tester in 1912. He worked steadily upward through the ranks and had become general distribution manager of Consolidated Edison by 1941. He later became general sales manager and assistant vice-president of the parent company before being elected vice-president and director of the Westchester and Yonkers companies in 1948.

Con Edison also announced the election as assistant vice-president of Frank J. Bischoff, formerly vice-president and director of the Westchester companies.

Other Westchester and Yonkers utility executives elected as officers of Con Edison are John P. McLoughlin, as assistant controller; Carl L. Carlson, as assistant treasurer and Frank M. Nilan as assistant secretary.

Mr. Bischoff was made a vice-president of the Westchester and Yonkers companies in 1946. He began in 1903 with Consolidated Gas, did accounting work for that company and Astoria Light, Heat and Power, and eventually became controller of Consolidated Edison.

Mr. McLoughlin has been affiliated with the Westchester utility companies since 1909, serving in various accounting posts. He was secretary and treasurer of the Westchester and Yonkers companies at the time of the merger.

Mr. Carlson was first employed by Westchester Lighting in 1912. He rose to be auditor of disbursements of both the Westchester and Yonkers companies and, later, assistant treasurer.

Mr. Nilan began with Westchester Lighting as an office boy in 1914. By 1943 he had become executive assistant to the President and assistant secretary of both companies.

Burt R. Bay Dies Suddenly In 'Old Home Town'

Burt R. Bay, past President and director of Northern Natural Gas Co., died in Granville, Ohio, on January 31. Apparently enjoying good health, Mr. Bay slipped on ice in front of his home and died from the results of the fall. Mr. Bay was 65 years old.

Born in Charleston, West Virginia, he first went to work bundling scrap in a tin plate mill. He entered the natural gas industry as machinist at Columbus Natural Gas Co., Granville compressor station. He was 22 years old at the time. A series of promotions soon found him superintendent of all their compressor plants. Under his direction, the company built one of the early natural gas absorption gasoline plants.

In 1917 he was transferred to Bartlesville, Oklahoma, as superintendent of gas compressor and oil pumping stations for the Empire Gas Group.

Three years later he was made assistant general superintendent of the natural gas division, and shortly thereafter, general superintendent. In this position he supervised the construction of the first all electrically welded pipe line.

He became vice-president and general manager of Missouri-Kansas Pipeline Co. in 1929. In the same year Missouri-Kansas organized Panhandle Eastern Pipeline Co. Mr. Bay had an important part in the planning, construction and development of that major pipe line system. He became President of Panhandle in 1933.

On August 1, 1938, Mr. Bay joined Northern Natural Gas Co. as executive vice-president and director, and on January 1, 1939 he became President. He held this post until September 1, 1950 when he retired as President. He remained a director until his death.

Mr. Bay was active in the American Gas Association. He was Chairman of the Natural Gas Section in 1943. He was President of Midwest Gas Association in 1945.

Program Prepared for Conference On Industrial & Commercial Gas

The program for the 1951 American Gas Association conference on industrial and commercial gas is virtually complete, according to an announcement by AGA. The conference will be held April 2, 3, and 4 in the Shoreham Hotel, Washington.

Highlights of the first day's program are: "Water Heating of All Types for Commercial Establishments in Both Volume Food Service and Non-Cooking Field," by Donald E. Dillon of Brooklyn Union; "It's Good for All Commercial Cooking," by L. J. Fretwell, Oklahoma Natural Gas Co., Tulsa; "Improve Your Relations with Your Local Restaurant Association," by Robert Willson of the Washington Restaurant Association.

The complete program for the general sessions on April 3 is: "How the Gas Industry May Help to Improve Mass Feeding," George L. Anderson, Quartermaster Corps, U.S. Army; "Selling to Government Agencies or Dealing with Procurement Offices," by William R. Loving, manager, government division, Washington Gas Light Co., and James R. Lee, manager, Washington office GAMA. Col. Williard F. Rockwell, Rockwell Manufacturing Co., will discuss "What's Ahead for America"; "What's Ahead for the Gas Industry," will be presented by D. A. Hulcy, President, AGA; and Frank H. Adams, President, Surface Combustion Corp., will tell "What's Ahead for Industrial Gas." "The Facts and Figures as Developed by Studies of Competitive Services," will be presented by G. George Segeler, utilization engineer, AGA.

Highlights of the closing day are: "Radiant Heat in the Glass Industry," by Robert C. LeMay, Selas Corp.; "Use of Gas for Melting Die Cast Metals and Comparative Costs," by Stewart C. Parker, Peoples Gas Light and Coke Co.; "Latest Developments in the Uses of Air Heaters," by Oscar Byron, J. O. Ross Engineering Co.; "Responsibilities of Industrial Gas Men in the National Emergency," by J. P. Leinroth; and "Heat Treatment of Steel—Gas vs. Induction," by Dr. Horace J. Grover, Battelle Memorial Institute.

Selas Develops New Device To Clean Compressed Gases

Continuous removal of petroleum vapor from compressed air and other gases by the Vape-Sorber, a newly developed device, is announced by Selas Corp. of America, Philadelphia.

The Vape-Sorber is installed in air or gas lines to instruments and pneumatic operations where "oily air" has detrimental effects. The Vape-Sorber also removes water, free oil, water-oil emulsions and dirt. Liquid-impervious ceramic filters operate in conjuction with specially compounded activated carbon to deliver clean air-gas to operating equipment, with no moving parts.

Charles H. Tenney Dies

Charles Henry Tenney, eighty-two, chairman of the boards of seven utility companies and a prominent figure in the industry in the Northeast since 1900, died on Feb. 7, at Springfield, Mass.

Mr. Tenney was chairman of the Concord Electric Co., the Exeter and Hampton Electric Co., the Fitchburg Gas and Electric Light Co., the Pike County Light and Power Co., the Rockland Light and Power Co., the Brockton Gas Light Co. and Springfield Gas Light Co.

He entered the utility field in 1900, when he became president of the Malden, Mass., Electric Co. Before that he had been a partner for three years in the investment banking firm of Thompson, Tenney and Crawford. Mr. Tenney started his business career at eighteen as an office boy in the Chicago office of N. W. Harris and Co., one of the first investment firms dealing in municipal bonds.

News of the Gas Industry

Fenton H. Finn

H. D. Borger

NY Natural & Peoples Natural Promote Five

Fenton H. Finn, Walter G. Comin, Jr., Fred A. Jaxtheimer, Edward C. Inghram, and Dr. H. D. Borger, have advanced in the New York State Natural Gas Corp. and The Peoples Natural Gas Co., E. M. Borger, President of both companies recently announced. The two companies are subsidiaries of Consolidated Natural Gas Co.

Mr. Finn has been elected vice-president of New York State Natural. He has served as chief geologist of Consolidated Natural since 1943 and will continue in that capacity while attending his new duties.

Mr. Comin has been elected treasurer of New York State Natural. He has been assistant treasurer since 1946.

Mr. Jaxtheimer, formerly head of the accounting department, has succeeded Mr. Comin as assistant treasurer.

Mr. Inghram has been appointed superintendent of production and storage of New York State Natural. He will also continue his duties as assistant superintendent of production and transmission for Peoples Natural.

Borger Is Now V-P of Peoples

H. D. Borger has been elected a vice-president of Peoples Natural. In addition to his new responsibilities, he will continue his previous duties as treasurer.

E. L. Dunn Becomes Consultant With Zinder & Associates

Edward L. Dunn has become an associate of H. Zinder & Associates, utility consultants, Washington, according to a recent announcement.

Mr. Dunn was formerly head of the rates investigation section of the Federal Power Commission.

Graff Now Industrial Engineer For Commonwealth Natural

K. Eugene Graff has been named industrial engineer for Commonwealth Natural Gas Corp., Richmond, reports Erick Larson, President.

Mr. Graff was formerly a project engineer for Fish Constructors and Fish Engineering Corp. on the Transcontinental gas pipe line project.

Since 1926, most of Mr. Graff's work has had to do with the utilization of natural gas. In 1931 he joined the Northern Natural Gas Co. where for five years he served as industrial engineer. He became associated with the Webster Engineering Co. in the capacity of combustion engineer in 1936 and traveled throughout the country as a specialist in industrial gas and oil installations.

Mr. Graff attended Purdue University.

C. Earl Lakin Elected V-P Of Dayton Power & Light

The election of C. Earl Lakin as vice-president in charge of gas operations was announced recently by Kenneth C. Long, President of The Dayton Power and Light Co.

Mr. Lakin was the manager of the western division of the company. He was President and a director of the Indiana and Ohio subsidiaries of the United Public Utilities Corp. from 1932 until Dayton purchased the Ohio holdings of this company in 1948.

All of Mr. Lakin's education and working experience as well as his service in the Army during World War I has been in the utility field. He started as a meter reader with the Union City Electric Co. of Union City, Indiana in 1913. In 1917-18 he took courses in electrical engineering under the supervision of the Department of Military Aeronautics at Texas A. & M. and at Carnegie Institute of Technology and served as an instructor.

From 1919 to 1924 he was employed by the National Electric Power Co. at Kansas City, the last three years as assistant to the manager. He then became assistant general manager in charge of operations and construction of the Kansas Electric Power Co. In 1926 to 1932 he had general supervision of electrical operations and construction of all of the subsidiaries of the National Electric Power Co. of New York.

Nathan H. Gellert, Jr., Made V-P By Seattle Gas

N. H. Gellert, Jr.

The board of directors of the Seattle Gas Co. recently elected Nathan H. Gellert, Jr. vice-president in charge of distribution, according to Charles M. Sturkey, vice-president and general manager.

Mr. Gellert has held the position of superintendent of distribution and utilization for the company since 1946.

"With the coming of natural gas to the Pacific Northwest, the problem of distribution of the gas through the present mains, and the extension of the mains to additional areas, becomes increasingly important," said Mr. Sturkey. "Nathan H. Gellert, Jr., has had extensive experience in changing over a manufactured gas system, such as ours, to a natural gas system."

Mr. Gellert came to the Seattle Gas Co. in 1945 and organized the company's customer service department. In 1946 he moved into the position of superintendent of distribution. He was formerly President of the Atlantic Gas Corp. and its subsidiaries in Elizabeth City, North Carolina. Prior to that he was vice-president and manager of the North Carolina Gas Corp. in Lexington, North Carolina.

He gained natural gas experience in the systems of Greenville, Michigan, and La Mars, Iowa. He assisted both these areas in their change-overs from manufactured gas to natural gas.

Portsmouth, Va., Is Converting To Natural Gas

The Portsmouth Gas Co., a subsidiary of Commonwealth Natural Gas Corp., located in Portsmouth, Virginia, began changeover to natural gas on February 20. Gas Construction and Service Co., of New York, was delegated to handle the conversion to natural gas.

The Portsmouth Gas Co. has announced a 20 per cent reduction in rates, which will result in a saving of $123,000 annually to its customers. Additional distribution facilities to serve new territories are being constructed.

Gavetti Is Gas Superintendent Of Phila. Electric Division

M. F. Gavetti, Jr., was named gas superintendent of Philadelphia Electric Company's Schuylkill division, it was announced recently. He succeeds A. H. Worthington.

Mr. Gavetti has been employed by the utility since 1937 when he became a cadet engineer. Later he was appointed assistant engineer of the gas transmission and distribution division of the company's Delaware division. He was transferred to the gas production plant at Tilghman street, Chester, where he became assistant plant superintendent.

Mr. Gavetti is a director and past president of the Chester Junior Chamber of Commerce, and a director of the American Red Cross, Chester branch. In 1945 he was recipient of the Eyerman Award in recognition of his work in the Junior Chamber of Commerce.

Lake Shore Receives FPC OK To Serve Northeastern Ohio

The Federal Power Commission has issued an opinion and order authorizing Lake Shore Pipe Line Co. of Cleveland, to acquire, construct and operate pipe line facilities which will carry natural gas into the northeastern Ohio area for the first time.

The commission concurrently denied the applications of Erie Service Co., Inc., of Oil City, Pa., and Grand River Gas Transmission Co., of Cleveland, which were competing with Lake Shore Pipe Line Co. for the northeastern Ohio market.

Lake Shore's project, estimated to cost about $1,450,000, will include approximately 45 miles of 10¾-inch line extending northwesterly from a point of interconnection with Tennessee Gas Transmission Company's system near Meadville, Pa., to Ashtabula, Ohio, where it will connect with 27 miles of 10¾-inch line extending westerly from Ashtabula to Fairport. The 27 mile section of line is to be acquired from The Lake Shore Gas Co.

Tennessee previously was directed by the Commission to allocate 17 million cu. ft. of natural gas per day for whichever company was certificated by the FPC to serve the northeastern Ohio area.

Lake Shore Pipe Line Co. will deliver and sell natural gas to The Lake Shore Gas Co., The Lake County Gas Co., the City of Painesville, and the Diamond Alkali Co. at Painesville.

Two New Publications Announced By Surface Combustion Corp.

Two new publications were recently announced by Surface Combustion Corp., Toledo. One is a bulletin on heating and heat treating equipment for defense production, and the other is a periodical designed to present current technical and operating information on Kathabar humidity control equipment.

The illustrated eight page bulletin (SC-150), entitled "'Surface' Heating and Heat Treating Furnaces for Defense Production," covers heating for forging as well as heat treatments to develop the required properties for the production of all kinds of ordnance material.

"The Humidity Engineer" is being published periodically and distributed to persons concerned with humidity control. It is intended to provide information on Kathabar engineering developments applied to air conditioning. Comfort conditioning and industrial processing applications are also covered.

Air conditioning engineers, process engineers, and plant maintenance men are offered the magazine free of charge.

Election of Officers Announced By Penna. Natural Gas Ass'n

The election of officers of the Pennsylvania Natural Gas Men's Association has been announced by the board of directors.

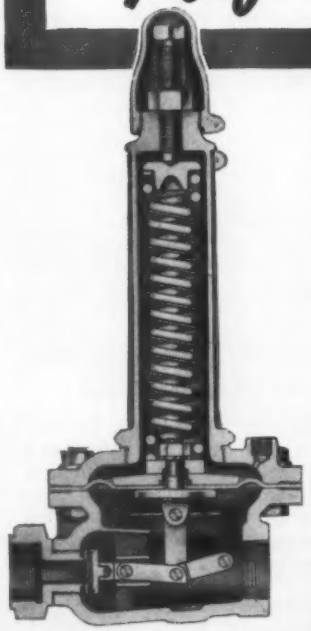
J. J. Jacob, Jr., has been elected President; H. H. Pigott, vice-president; P. L. Kesel, secretary-treasurer; and Mark Shields, executive secretary.

President Jacob has appointed the following committee chairmen for the year: W. G. Comin, audit committee; Dr. R. W. Miller, technical committee; J. M. Shields, membership committee; and W. L. Hutcheson, program committee.

IN THE HIGH PRESSURE FIELD

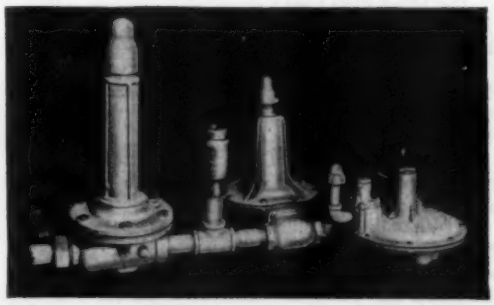
THERE IS SAFETY

IN *Reynolds...*



Accurate, Safe Control

of tremendous pressures is an ever present problem in the gas field. Reynolds field Regulator illustrated at left is one of the many high pressure regulators built by Reynolds. It is thoroughly tested and proved in service. It handles up to 1,000 pounds safely reducing same to pounds. For more than fifty-five years Reynolds has designed and built gas regulators. Safety, accurate performance, years of service—these are some of the built-in factors responsible for Reynolds enviable position in the Gas Control Field.



Reynolds Gas Regulator Co.

ANDERSON, INDIANA, U. S. A.

GAS CONTROL SINCE 1892

Huyck Elected Vice-President Of Brooklyn Union

Ansel B. Huyck has recently been elected vice-president and chief engineer of Brooklyn Union Gas Co.

Mr. Huyck joined the company in 1931 as assistant superintendent of Greenpoint works. He soon became superintendent, occupying that post until 1937, when he became assistant engineer of manufacture. In 1940 he became engineer of manufacture and five years later became assistant chief engineer. He became chief engineer in 1948.

Mr. Huyck did most of the planning for the consolidation of the Greenpoint works organization in 1938, and he has contributed to engineering developments.

Dennis S. Melvin Dies

Dennis S. Melvin, manager of the advertising department of Consolidated Edison Co. of New York, died February 27.

Born in Hampton, New York, 1897, Mr. Melvin was graduated from Troy Conference Academy, Poultney, Vt., in 1915. He worked for the Strathmore Paper Co. and the General Electric Co. before joining Consolidated Edison in 1929 as a district salesman.

Thomas J. Kelly Dies

Thomas J. Kelly, division manager of Northern Indiana Public Service Co. at Fort Wayne, died recently after a short illness.

Mr. Kelly was born in Fort Wayne and received his early education there. He was graduated from Purdue University in 1911. He was later employed by the predecessor of Northern Indiana and since 1933 he has been division manager at Fort Wayne. He had served as President of the Indiana Gas Association.

C. I. Weaver Retires as Head Of Ohio Fuel Gas Co.

C. I. Weaver, chairman of the board of directors and chief executive officer of the Ohio Fuel Gas Co., retired March 1, after 20 years as head of Ohio Fuel, the company has announced.

Mr. Weaver continues as a director, but his executive duties were assumed by E. C. Overbeck, who was elected President last year.

Mr. Weaver joined Ohio Fuel in 1930 as vice-president and general manager and was elected President in 1931.

After his graduation from Kansas State College in 1906, he was employed as a salesman by General Electric Co. In 1910 he went to work as a power engineer in Michigan. He was named vice-president and general manager of the predecessor of Ohio Edison Co. in 1918. In 1930 he became vice-president and general manager of Ohio Fuel.

Mr. Overbeck started with the company 38 years ago as a pipeliner and well tender. He was elected vice-president and director in 1947.

E. B. Hawkinson

W. V. Stockton, Jr.

Two Receive New Appointments From American Meter Co.

The appointments of E. B. Hawkinson and W. V. Stockton, Jr., as manager of the San Francisco factory, and as Philadelphia district sales manager, respectively, has been announced by American Meter Co.

Mr. Hawkinson joined the Pacific meter works division of American Meter in 1927 after spending over eight years with US Cartridge Co. as assistant to the manager in charge of production and accounts. He was made office manager of American Meter in 1929 and production manager in 1932. In 1938 he was made assistant manager.

Mr. Stockton, following his graduation from Purdue in 1919, became assistant to the production superintendent of the Rocwood Manufacturing Co., Indianapolis. He became associated with American Meter in 1925 in development and experimental work. In 1933 he was appointed assistant manager in charge of research and development. He has written several papers on meters and diaphragms, and is the inventor of the baffle tube screw, now used on displacement meters.

Springer to Serve So. Counties As Secretary and Counsel

Milford Springer, former Los Angeles deputy city attorney, has been appointed secretary and counsel of Southern Counties Gas Co. according to a recent announcement by President Arthur F. Bridge. He was also elected to the board of directors.

A graduate of Stanford University and the Stanford Law School, Mr. Springer served as deputy city attorney of Los Angeles from 1933 to 1937. Between 1937 and 1943 he was on the legal staff of the Federal Communications Commission, the Securities Exchange Commission, and the Federal Power Commission.

After service in the Air Transport Command in World War II he returned to FPC. In 1946 he joined the legal staff of Southern California Gas Co.

Brooklyn Union Appoints Towner Distribution Head

William J. Towner has been appointed engineer of distribution, succeeding C. S. Goldsmith who retired recently from Brooklyn Union Gas Co. after being with the company since 1921.

Mr. Towner joined Brooklyn Union in 1933 as a trainee. On completion of this training he was made a superintendent's assistant in the Brooklyn street section of the distribution department. He carried that rank in both Brooklyn and Queens until 1938, when he was promoted to assistant superintendent.

He became assistant superintendent in holder distribution in February 1947, and advanced to superintendent one year later. In May 1949, he was made assistant engineer of distribution.

Daniel Orifice Expands Plant At Houston, Texas

The Houston plant of the Daniel Orifice Fitting Co. of Los Angeles has been enlarged to take care of production increases. Five thousand additional square feet of floor space has been added. A 2,000 square foot office building was also constructed.

The Houston plant is now manufacturing and distributing headquarters for the southwest and Gulf coast area and handles eastern and mid-continent sales as well. W. A. Griffin, vice-president and general manager, who was recently elected a member of the Daniel board of directors, heads the Houston operation. George Poindexter is plant superintendent in charge of production.

Front of Daniel Orifice Fitting Company's new office building in Houston.

New Company Will Specialize In High Temperature Equipment

Petrocarb Equipment, Inc., 30 Vesey Street, New York 7, was incorporated recently to specialize in high temperature equipment and refractory constructions for the process industries including hydrocarbon and certain metallurgical operations.

According to Arthur A. Turner, President, the new company has acquired a license to sell and build the patented Hughes broad oven used for coking petroleum residues, acid sludges, pitches and tars as well as coking certain coals to give reactive coke. Petrocarb Equipment will also design and construct other types of high temperature refractory structures, such as retorts and gas heating and cracking units involving refractories.

At the initial meeting of the board of directors, Mr. Turner was elected President; Kenneth W. Stookey and C. A. Stokes, vice-presidents; and Jo C. Calhoun, treasurer. In addition to the officers, Edwin B. Forse, Kenneth W. Brown and Charles H. Hughes are directors of the new concern.

Mr. Turner, a graduate of Massachusetts Institute of Technology, and formerly with Harbison-Walker Refractories Co., Pittsburgh, has been connected with the Refractories Division of The Carborundum Co., Perth Amboy, N. J. for the past 18 years, now serving as technical sales manager. Mr. Stokes is director of research of Godfrey L. Cabot, Inc., Boston, while Mr. Stookey and Mr. Calhoun are President and vice-president respectively of the Gas Machinery Co., Cleveland. For the present these men will retain their current affiliations.

Underground Storage

(Continued from page 26)

may be completed and gas injected during the summer months.

The project must be completed and the field repressured by this coming November so that gas from storage will be available to meet peak day demands during the winter of 1951-1952. Texas Gas declared the company must be prepared for a continuation of the "unprecedented demands" that have been made on its system.

Michigan Gas Storage Co., of Jackson, Mich., has asked for authority to acquire and construct new facilities in Michigan required to handle an additional gas supply which the company expects to receive next winter from Panhandle Eastern Pipe Line Co.

Michigan Gas is proposing to acquire the Riverside Gas Field, in Missaukee County, Mich. In connection with the field, the company would acquire an existing line and facilities owned by Consumers Power Co.

The proposed construction includes approximately 78 miles of 24, 22, and 16 inch line extending from Laingsburg Junction to a point near Pontiac-Mt. Clemens, together with three lateral lines into Consumers' southeast division, in the Pontiac area and an additional 7400 hp compressor capacity at the Muskegon River compressor station. The company also would build about 30 miles of 26 inch line looping its existing Muskegon River-Freedom Junction line, and necessary metering and regulating stations.

Estimated over-all capital cost is $10,866,000.

Tennessee Gas Transmission Co., of Houston, and United Natural Gas Co., of Oil City, Pa., have filed a joint application to construct facilities necessary to develop and utilize an underground storage area in the Hebron Field in Potter County, Pa.

The proposed $7,757,200 project would include 70 wells and 70 well measuring stations, aproximately 89,530 feet of pipe, and appurtenant facilities.

According to the application, the area, when developed, will have capacity to hold efficiently in storage at least 22,500,000,000 cu. ft. of active gas and the ability to deliver at least 225 million cu. ft. per day. Tennessee is also seeking authority to inject approximately 23,800,000,000 cu. ft. of cushion gas into the storage area.

AND-THE SAME SOLUTION

♦ Seventy-five years ago, gas processors faced the problem of H_2S removal. Then, just as they do today, they turned to Iron Sponge for most efficient purification at lowest cost.

Iron Sponge offers extremely high activity with maximum absorption. Periods between regeneration are longer while the regeneration itself is accomplished quickly and simply.

For low or high pressure purification problems, Iron Sponge is *still* the most economical solution.

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CONVENTION CALENDAR

March

12-14 Mid-West Gas Association, Hotel Fontenelle, Omaha, Nebr.
13-16 National Association of Corrosion Engineers, Statler Hotel, New York.
26-27 AGA Residential Gas Section, Eastern Natural Gas Regional Sales Conference, William Penn Hotel, Pittsburgh.
29-30 NEGA Annual Meeting, Hotel Statler, Boston.
29-30 Oklahoma Utilities Association, Mayo Hotel, Tulsa.

April

2-4 AGA Sales Conference on Industrial and Commercial Gas, Shoreham Hotel, Washington.
3-6 Greater New York Safety Council, Annual Safety Convention and Exposition, Hotel Statler, New York.
10-12 Southwestern Gas Measurement Short Course, University of Oklahoma, Norman, Okla.
16-18 AGA Distribution, Motor Vehicles and Corrosion Conference, Hotel Peabody, Memphis.
16-18 GAMA, Annual Meeting, Drake Hotel, Chicago.
19-21 Florida-Georgia Gas Association, Spring Convention, Hollywood Beach Hotel, Hollywood Beach, Florida.
23-25 Southern Gas Association, Biloxi, Miss.
26-27 Indiana Gas Association, French Lick Springs, French Lick, Ind.

May

4 New Jersey Utilities Association, Spring Meeting, Seaview Country Club, Absecon, N. J.
7-8 AGA Natural Gas Department, spring meeting, Baker Hotel, Dallas, Texas.
14-16 AGA Production and Chemical Conference, Hotel New Yorker, New York.
15-17 Pennsylvania Gas Association, Wernersville, Pa.
17-19 Public Utilities Advertising Association Convention, Hotel New Yorker, New York.
21-23 Missouri Association of Public Utilities, annual convention, Jefferson Hotel, St. Louis.
27-30 American Society of Refrigeration Engineers, Spring Meeting, Hotel Statler, Detroit.

June

18-21 Canadian Gas Association, Bigwin, Lake of Bays, Ontario.
25-26 Michigan Gas Association, The Grand Hotel, Mackinac Island, Mich.

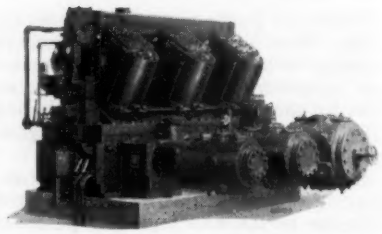
September

4-6 PCGA Convention, Fairmont Hotel, San Francisco.

October

15-17 AGA Annual Convention, St. Louis.

New Compressor Manufactured By Ingersoll-Rand



Ingersoll-Rand has announced its new SVG, a gas-engine-driven compressor that is essentially the V-angle XVG compressor, but improved and modernized by redesign. This new compressor is built in two sizes, 330 hp. with six cylinders and 440 hp. with eight cylinders.

Both sizes weigh about 20 per cent less per bhp. than the XVG, and the foundations are smaller.

Crank angles of 120° on the 6-cylinder unit and 90° on the 8-cylinder unit, two power cylinders per compressor frame, lightweight aluminum power pistons with low inertia forces, and shaft counterweighting make the SVG a smoother running machine, the announcement states.

A 10 per cent saving in fuel is said to be secured by increasing the compression ratio, and the oil consumption to be lower because of aluminum pistons, narrow piston rings, and chrome-plated top rings.

Campbell Joins Eclipse Fuel Engineering

Donald A. Campbell has become associated with Eclipse Fuel Engineering Co., Rockford, Ill., as vice-president in charge of engineering and research, according to an announcement by J. H. Sands, executive vice-president.

Most recently Mr. Campbell has been with Affiliated Gas Equipment, Inc. (Bryant Heater) as manager of the industrial division, specializing in gas combustion equipment. Preceding this, he was associated with H. L. Doherty & Co. in various sales engineering capacities and with the Wheelco Instrument Co. as New York district representative.

From 1929 through 1939, Mr. Campbell was with Eclipse Fuel Engineering as a gas combustion engineer.

H. W. Townsend and F. E. Drake Head New Company

Drake & Townsend, Inc., a new company specializing in the design, engineering, and construction of propane plants, has been recently organized. The officers are Harry W. Townsend, President, formerly President and director of Pacific Gas Corp. and California Maine Corp.; and Francis E. Drake, vice-president and treasurer, formerly manager of the gas department of Lynn Gas and Electric Co., Lynn, Mass.

Program of New England Gas Ass'n Convention Stresses Importance of Natural Gas

The program for the New England Gas Association 1951 annual meeting will be concerned largely with conversion to natural gas, according to an announcement by Clark Belden, NEGA managing director.

The meeting will be held at the Hotel Statler in Boston, March 29 and 30.

High-lighting the Thursday afternoon session is a panel discussion on the public relations aspects of conversion, including such points as, outside consultants, publicity, relationship considerations, communications, set-up, employee considerations, customer considerations, servicing, and the handling of claims, accidents and hazards.

Chairman Gordon G. Howie, vice-president and general manager, Cambridge Gas Light Co., will lead the discussion. Other members participating will be: Donald S. Bittinger, general superintendent, Washington Gas Light Co.; Lester J. Eck, vice-president and assistant general manager, Minneapolis Gas Co.; Henry A. Eddins, vice-president, Laclede Gas Co.; Rutherford Van Vliet, general superintendent, New York and Richmond Gas Co.; and J. Theodore Wolfe, vice-president, Consolidated Gas, Electric Light and Power Co. of Baltimore.

The speeches comprising the program are as follows:

"Public Relations Aspects of Conversion to Natural Gas," by William P. Woods, President, Conversions & Surveys, Inc.

"Trying to Secure New England's Gas Industry Steel Requirements," by Hall M. Henry, vice-president, NEGEA Service Corp., Cambridge, Mass.

"Stand-by Plant Operation and Interchangeability Problems," by William R. Fraser, assistant to manager of operations, Michigan Consolidated Gas Co.

"Planning Your Sales Program with Natural Gas," by Irving K. Peck, vice-president, The Manufacturers Light & Heat Co.

"Keeping the Public Sold on Gas—an Industry Responsibility," W. L. Hayes, general sales manager, Montana-Dakota Utilities Co.

"Trends in Public Opinion," Walter G. Barlow, vice-president, Opinion Research Corp.

"War Developments of Interest to Utilities," by J. French Robinson, chairman, national defense committee, AGA, and President, East Ohio Gas Co.

"Trends in Employee Thinking," Douglass V. Brown, professor of Industrial management, Massachusetts Institute of Technology.

An election of officers and directors will open the meeting Thursday morning, March 29. Addresses by Clark Belden, managing director, NEGA; Frederic O. Hess, GAMA President; J. A. Hiller, NEGA President; and D. A. Hulcy, AGA President, will follow.

C. E. Elbert Elected Secretary Of Long Island Lighting

The board of directors of Long Island Lighting Co. has elected Charles E. Elbert secretary of the company to succeed Edward J. Crummey, who retired on March 1.

Mr. Elbert formerly was assistant secretary of the company and will be succeeded in that capacity by Francis J. Thumser, a member of the company's legal department.

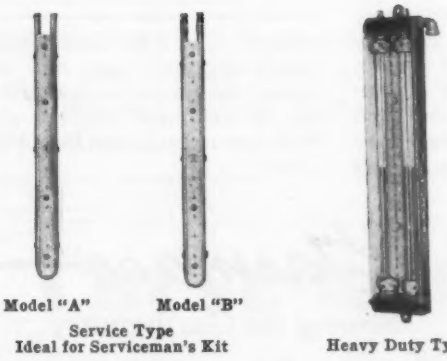
Bryant Heater Names W. H. Wise Assistant Director of Sales

Bryant Heater Division, Affiliated Gas Equipment, Inc., recently announced the promotion of William H. Wise to assistant director of sales.

Wise joined the Bryant organization as Chicago branch manager in 1947 after serving as manager of the sales engineering department for Peoples Gas Co. of Chicago. In 1950 he became Bryant's mid-western sales manager.

NORWALK MANOMETERS

For Water, Mercury, Oil or Glycerine



Model "A" Service Type Ideal for Serviceman's Kit

Model "B"

Heavy Duty Type

For pressure or vacuum use. Made in all sizes and types. Service Type has unbreakable tubing and will stand abuse. Send for bulletin 3100M for complete data and prices.

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Manufacturers of Norwalk-Connelly Regulators since 1878

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One Man Operation On Every Application

HIGHLY EFFICIENT

IMMEDIATE SHIPMENT

Free Demonstration and Operating Instructions

Catalog No. 25M On Request

JOSEPH G. POLLARD CO., INC.

Pipe Line Equipment

New Hyde Park **New York**

Gas Legal Decisions

(Continued from page 23)

curities and Exchange Commission and its subsidiaries properly accepted figure of the state Public Service Commission for deficiency of reserves for depreciation, without *independent* inquiry in arriving at a rate base and rate of return for use in checking the accuracy of its future net income.

At the same time it was held that the possibilities of increased return of income for the common stock were too remote and speculative to require consideration in terms of present value of the common stock by Securities and Exchange Commission.

Considerable discussion has arisen from time to time over the legal question: If a gas company condemns or appropriates private property what dependable rule of law determines the amount payable to the owner of the appropriated property?

The answer is: Generally speaking, the amount of damages in condemnation proceedings by a gas company is a question for the jury, and its verdict will not be disturbed unless *so excessive* as to show passion or prejudice, or unless based on estimates unsupported by the testimony, or so extravagant as to carry with them the improbability of their correctness.

For example, in Tennessee Gas Transmission Co. v. Huddleston, 229 S. W. (2d) 983, the testimony showed facts, as follows: The Tennessee Gas Transmission Co. condemned 3.97 acres of a 97 acre tract belonging to one Huddleston for construction of a water reservoir for operation of a gas compression station. The lower court entered judgment on a verdict awarding Huddleston $2,500 and the gas company appealed on the contention that the award was grossly excessive in view of these facts: The value for taxation of the whole farm was $4,000, or about $40 an acre. Notwithstanding this fact Huddleston placed $5,000, or approximately $1,250 an acre, as the value of the 3.97 acres.

In view of this testimony the higher court reversed the lower court's verdict, saying:

"On the basis of the verdict, this means the 97 acres has a fair cash market value of $60,625. We are aware that as a practical matter, there is and must be some regard had for the fact that one's property is being taken from him by force of governmental power for the good of the people as a whole or because of common necessity and interest; also, that consideration is given to the value of the land to the corporation requiring and taking it. . . . This verdict strikes us as manifesting unfairness and prejudice against the gas corporation and favoritism for the jurors' neighbor where deliberation and judgment should have prevailed."

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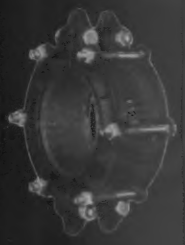
SKINNER-SEAL Bell Joint Clamp for stopping bell and spigot joint leaks under pressure. Gasket is completely sealed: at bell face by Monel Metal Seal band—at spigot by hard vulcanized gasket tip.

AND BROKEN MAINS

SKINNER-SEAL Split Coupling Clamp. One man can install in 5 to 15 minutes. Gasket sealed by Monel band. Tested to 800 lbs. line pressure. A lasting repair. 2" to 16" incl.



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SOUTH BEND 21, INDIANA, U.S.A.

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ENGINEEERING DEPARTMENT HEAD WANTED

"Engineer to assume full direction of department handling design, laboratory testing, and AGA approval, and initial production liaison on new lines of gas ranges. Work in California for nationally established company. Reply Box 228, c/o American Gas Journal, 205 E. 42nd Street, New York 17, N. Y.

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COTTRELL ELECTRICAL PRECIPITATION EQUIPMENT USED FOR REMOVING TAR FROM COAL GAS

This equipment has a rated capacity of 2500 cu. ft. of gas per minute at an inlet temperature of 85 degs. F. and 20 to 30 ins. H_2O positive pressure and consists of the following:

A) PRECIPITATOR. One precipitator unit approximately 5 ft. 2 in. diameter by 17 ft. 8 in. high of steel construction.

B) ELECTRICAL EQUIPMENT. One set of electrical equipment with: One switchboard panel with terminals for 220 volts, 2 phase, 60 cycle supply line together with ammeter, voltmeter and necessary control equipment.

One transformer for stepping up the primary voltage to 50,000 volts, the controls on the switchboard making possible the variation of the secondary voltage in steps below 50,000 volts.

Two mechanical rectifiers with synchronous motor drives for converting the secondary alternating current into unidirectional current, a transfer switch being provided so that one rectifier may be operated while the other serves as a spare. Electrical connections of wire, conduit and insulators between the switchboard, transformer, motors, rectifiers and precipitator together with suitable substation lines, guards and screens.

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IRON HYDROXIDE

The mark of unerring dependability in purification

GAS PURIFYING MATERIALS CO., INC.
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Serving the Gas Industry

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Gas Plant Equipment and Industrial Furnaces

A HALF CENTURY OF SERVICE

THE GAS MACHINERY COMPANY
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THE GAS MACHINERY COMPANY (CANADA) LTD.
Hamilton, Ontario

American Standard Installation Approved by Standards Ass'n

A step toward the enactment of uniform legislation on the installation of gas burning equipment has been taken with the American Standards Association's approval of American Standard Installation of Gas Piping and Gas Appliances in Buildings, Z21.30—1950.

This standard is the cumulative result of years of experience of the many men and organizations represented on the Approval Requirements Committee of the American Gas Association. The work of this group is organized under the procedures of ASA and is designed to protect the public by assuring safe and satisfactory utilization of gas.

The standard applies only to low pressure (not in excess of ½ pounds per square inch) gas piping systems in buildings, extending from the gas meter outlet to the inlet connections of appliances, and the installation and operation of residential and commercial gas appliances supplied through such systems by public utilities.

It covers the design, fabrication, installation, tests and operations of such systems for fuel gases such as natural gas, manufactured gas, liquefied petroleum gas-air or mixtures thereof.

It is not intended to cover systems distributing undiluted liquefied petroleum gas.

Installation requirements for specific appliances are included: domestic ranges, bungalow and dual oven type combination gas ranges, water heaters, room or space heaters, central heating boilers and furnaces, recessed heaters, floor furnaces, duct furnaces, conversion burners, gas-fired unit heaters, clothes dryers, gas-fired incinerators, gas refrigerators, hot plates and laundry stoves, hotel and restaurant ranges (deep fat fryers and unit broilers), gas counter appliances, and portable gas baking and roasting ovens.

The standard is published in a handy pocket-sized edition, 99 pages, with a heavy paper cover.

Copies of American Standard Installation of Gas Piping and Gas Appliances in Buildings, Z21.30-1950 may be obtained from the American Standards Association, 70 East 45 Street, New York 17, or from the American Gas Association Laboratories, 1032 East 62 Street, Cleveland 3, at 25 cents per copy.

Norton Company Announces New Refractory Product

A new refractory product, fused stabilized Zirconia, has recently been announced by the Norton Company, of Worcester, Mass., manufacturers of grinding wheels, grinding machines, and refractory products.

A product which promises to open an entirely new era in chemical processing at ultra-high temperatures, Norton fused stabilized Zirconia in molded shapes will withstand temperatures up to 4600 degrees Fahrenheit—far beyond the limit of other commercial oxide refractories.

Among the uses to which this product can be put are: Furnace lining bricks for gas synthesis at high temperatures, setter plates for firing titanates used in the construction of capacitors in the electronic equipment field, heating elements for electric furnaces, containers and conveyers for molten steel and thermal insulation.

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Index of Yields

(Continued from page 31)

company sources fits in very closely with the thoughts expressed by important market observers. They hold to the belief that about two-thirds of all common stock purchases during the past few months have been made by institutional sources—for pension, profit-sharing and other such purposes. Never before in financial history, they say, have so many equities gone into at least temporary hiding. This gradual but constant absorption of common stocks has contributed to the sharpness of market movements in their trend to higher prices, and to failure of the market to react equally as sharply on the downside. Sooner or later, they conclude, institutional demand for stocks will be satisfied, at least temporarily, and when such a development takes place the market averages may well tell another story.

The utility companies—electric, gas and combination companies—recently have continued to obtain new money at an advantageous price basis. New stock issues, when priced correctly, have gone very well, a factor which is attested in the success of Southern Natural Gas Company's offering of 155,546 new common shares to stockholders under subscription warrants which expired on February 16.

Southern received total subscriptions for 281,504 shares, or 180 per cent of the stock which it had put up for sale. Primary subscriptions were received for 96 per cent of the 155,546 new shares and stockholders applied for another 131,628 shares under their privilege of subscribing for stock not taken by other warrant holders. Only about 5,670 shares remained for shareholders under this excess subscription right and allocations had to be made in tne ratio of only about one share for each 25 shares sought.

Government restrictions probably will combine with a lack of necessary materials and with a smaller number of new homes to hold financing requirements of the gas companies in 1951 below the $1,720 million of all types of issues sold last year.

Industry managements will have to scan the market horizon constantly, however, for signs of any appreciable reaction in security prices before taking financing steps if they are to continue to obtain favorable rates on their new securities.

Upgrading the type of new securities —i. e., substituting bonds, debentures and possibly preferred stocks for common shares—in the event the market for equities should go into a tail spin —might not be possible in all cases if recent action of one Federal regulatory agency is any criterion.

This agency completely disregarded ratios and possible unsettlement of market conditions when it told one natural gas company management that it did not care how liberal the company's common stock ratio was—that it would have to raise a part of its needed new funds through the sale of common stock, and not all through the medium of bonds as the management originally had proposed.

INDEX TO ADVERTISERS

American Meter Co.	24-25
Bryant Heater Div.	10
Cast Iron Pipe Research Association, The	6-7
Chaplin Fulton	Inside Front Cover
Columbia Gas System, Inc.	8
Connolly, Inc.	43
Cooper Bessemer Co.	5
Cruse-Kemper Co.	47
Empire Stove Co.	2
Gas Machinery Co.	46
Gas Purifying Materials Co.	46
General American Transportation Corp.	Inside Back Cover
Lattner Mfg. Co., P. M.	48
Norwalk Valve Co.	45
Pollard Co., Joseph G.	45
Reynolds Gas Regulator Co.	41
Robertshaw-Fulton Controls Co.	Front Cover
Rockwell Manufacturing Co.	Inside Front Cover
Safety Gas Main Stopper Co.	48
Semet-Solvay Engineering Division, Allied Chem. & Dye Corp.	1
Servel, Inc.	34-37
Skinner Co., M. B.	46
Sprague Meter Co.	Back Cover
Stacey Manufacturing Co.	44

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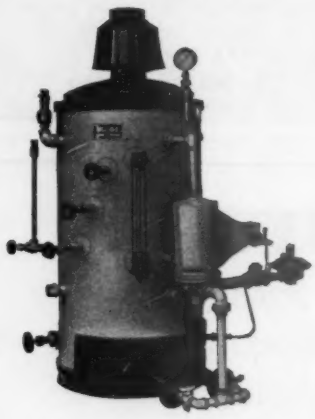

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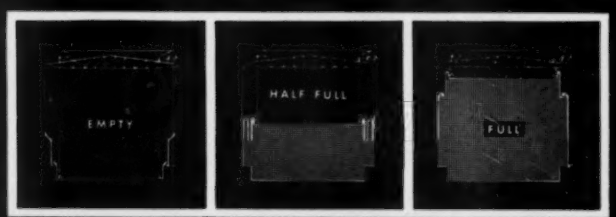

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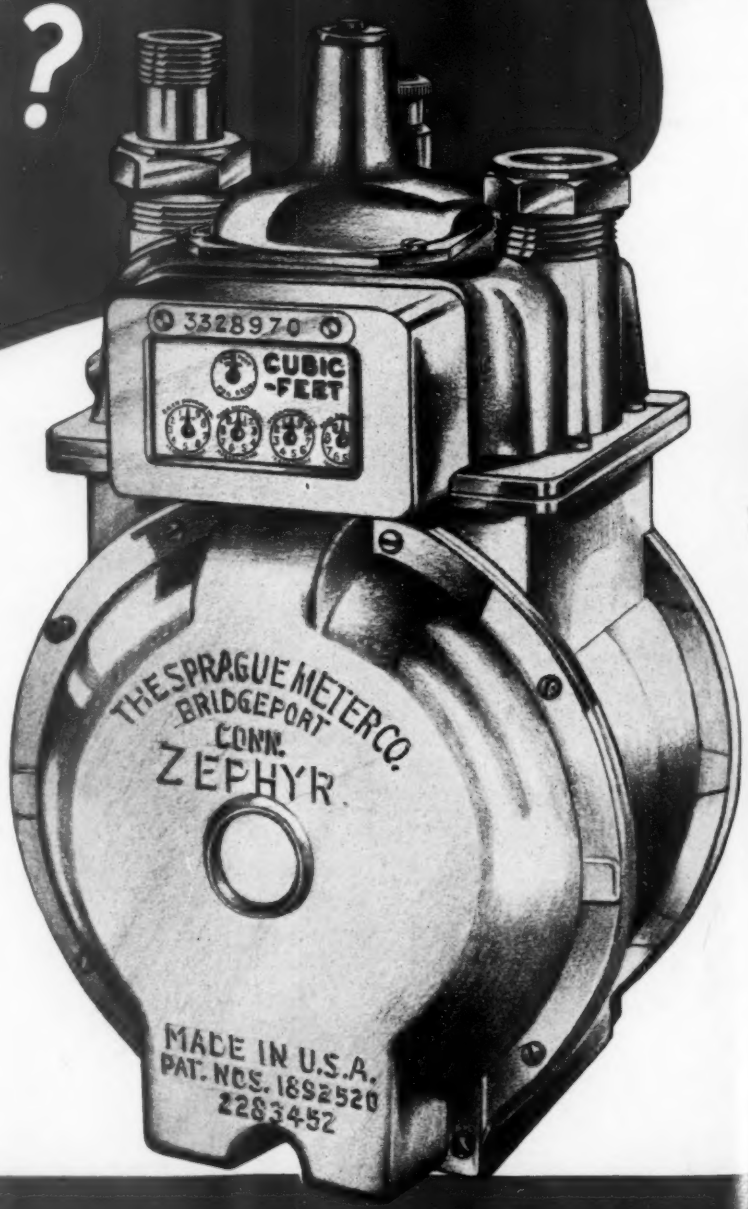

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